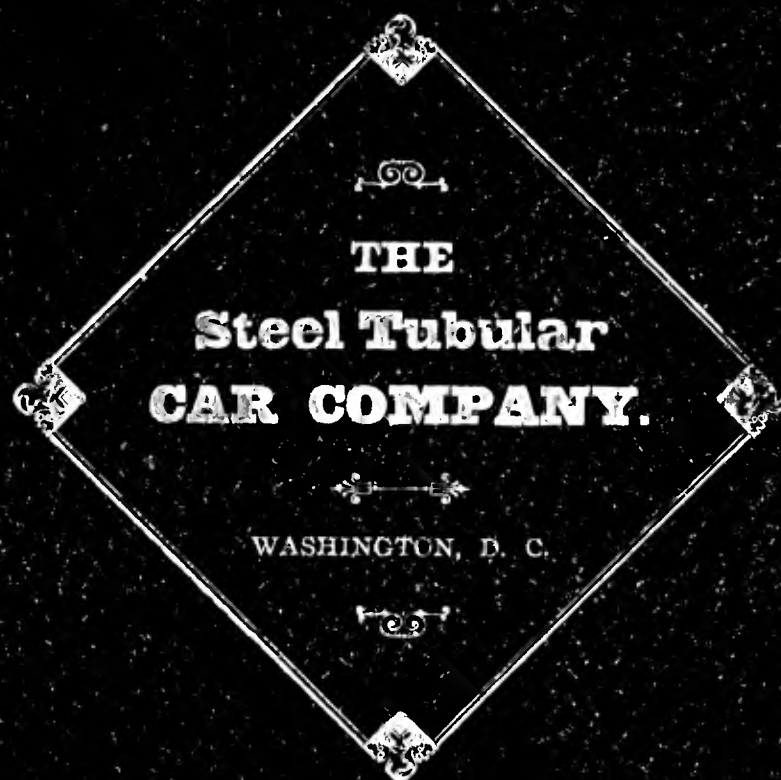


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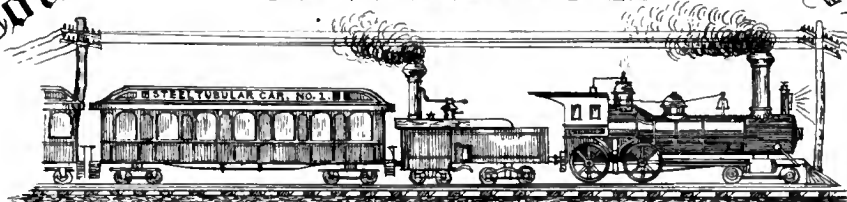


*WELCOME TO ALL.*

The Inventor's Country Home.



*To all interested in Saving Human Life.*  
**TO ALL WHO TRAVEL.**



*To all interested in Railroads,*

TO ALL HAVING RELATIVES OR FRIENDS JOURNEYING BY RAIL,  
 To all forwarders or receivers of valuable freight or express matter, etc.  
 To all who either send or receive Notes, Checks, Drafts, Valuable papers or letters by Mail,  
 To all who desire to see such a radical change in the

## **GREAT CAR BUILDING INDUSTRY**

AS WILL

### **INSURE SAFETY TO LIFE, LIMB AND PROPERTY**

Let them thoughtfully read **ALL** herein printed and carefully examine the

**PRACTICAL DESIGNS**  
 which so plainly illustrate the means of bringing about the  
 Long desired Change.

A real remedy is at hand at last

## **A CAR INDESTRUCTIBLE BY EITHER FIRE OR COLLISION**

**HAS BEEN INVENTED.**

A number of earnest and able gentlemen, representing business interests from  
**NEW ORLEANS to BUFFALO and NEW YORK, from JACKSONVILLE to**  
**MINNEAPOLIS, from BOSTON, PHILADELPHIA, WASHINGTON and**  
**CHICAGO to SAN FRANCISCO**

men experienced in all matters pertaining to Railroads  
 have organized a **COMPANY** to push this  
**GREAT INVENTION FORWARD TO SUCCESS,**  
 And whoever aids in placing these

## **SAFETY CARS**

in use is not only shrewd in a business sense—certain of pecuniary reward—  
**BUT A PRACTICAL PHILANTHROPHIST,**  
 directly aiding to save and protect  
**HUMAN LIFE.**



*William B. Gibbons.*

*By the Author.*





# INDESTRUCTIBLE STEEL TUBULAR CAR.





This invention relates to an INDESTRUCTIBLE STEEL TUBULAR RAILWAY CAR, for which many advantages of a peculiar and invaluable nature are claimed.

The framework is of steel tubing, so arranged as to withstand the severest shocks known to the list of railroad accidents.

It is constructed in the following manner: Six longitudinal tubes, possessing great strength, are held in position as shown on page 49, Fig. 4, and thoroughly surrounded and interlaced with transverse tubular steel ribs or bands, a portion of which are rectangular, conforming to the size and shape of the car, and a portion complete circles or rings. These ribs or bands are placed at suitable distances along the longitudinal tubes, usually in groups of three, (see page 25, Fig. 1,) intersecting each other and also the longitudinal tubes at frequent intervals, and are firmly clasped, riveted, or brazed together, forming, substantially, an integral network of steel, capable of resisting an end pressure of several thousand times its own weight, and presenting the arc or crowning arch of a circle along the sides, top, and bottom of the car, with strength sufficient to withstand accidental side thrusts from whatever source they may come.

This substantial network of steel tubing supports the body of the car, and is, practically, uncrushable, so that the passenger's life is saved, no matter how serious the collision may be. But, in order to materially lessen the force and suddenness of the concussion usual in railroad accidents, a series of shorter and smaller tubes, supporting the platforms, are placed in axial line with the large longitudinal tubes and fitted telescopically within them, each of the inner ends abutting against a strong coiled spring. (See page 37, Fig. 3.) These smaller tubes, forming a portion of the platform framework, are placed in proper position within the aforementioned large tubes, and a pin or bolt passed through each, of sufficient strength to withstand all strains incident to drawing or coupling; but when a collision occurs, the unusual force shears off these pins, and the smaller tubes supporting the platforms are forced inwardly, cushioning against the strong coiled springs within the large longitudinal tubes, and thus break much of the force of the otherwise terrible shock; and though the outside platforms may be crushed, the body of the car containing the passengers remains intact, and their lives are of course preserved. To afford additional security, and provide against accidental fires, which so frequently add to the horrors of railway accidents, the covering and finish of the car is made of properly-prepared asbestos-board, or other non-combustible material, so that in no event can these coaches be either crushed or burned. Thus we have a car absolutely *safe* to travel in, and, besides, one possessing unusual advantages for the comfort and pleasure of the "Travelling Public," being outwardly light and graceful in appearance, and finished interially with every convenience known to modern science. The greatly-improved trucks on which this car is carried are constructed with independently-acting springs for each wheel, traveling easily and with unusual smoothness and silence over the road, the wearing points being provided with practical shields or dust-fenders, which greatly lessen the usual friction, and correspondingly increase their life and efficiency.

The devices for heating the car in winter and cooling it in summer; the arrangement for immediately regulating any and *all* windows; the simple provision for converting the sleeper into a series of apartments or independent staterooms; the unmistakable manner in which all stations are announced; the emergency brakes, by which passengers themselves can prevent the car from plunging over an embankment, even though under full headway, and the improvements for ventilating and properly distributing hot and cold air, are







special features of this invaluable invention. What traveler does not know that the tens of thousands of parlor and sleeping cars are filled, sometimes to overflowing, with eager passengers, intent on securing additional comfort only? And if we can give them *superior* comforts, in addition to the incomparable advantage of an absolute *assurance of life*, is it not fair to assume that they will quickly and fully appreciate the effort, eventually leading to a general demand that this class of cars be placed on the whole vast system of railroads? The advantages of these cars to the railroads themselves are also great. The easily-acting independent springs, yielding readily to all irregularities of the road and greatly lessening the usual concussion on the tracks, will of course materially lessen the necessary wear, and, as is obvious, will also greatly lessen the cost of keeping up repairs along the line; and in case of collision or other accident the difference in point of repairs to both rolling stock and tracks, damages to passengers, &c., is simply incalculable. These important considerations alone are seemingly sufficient to warrant a general introduction of this class of vehicles.

This wonderfully-complete series of inventions, being protected by not less than nine comprehensive Letters Patent, unquestionably assures a *monopoly* to the parties controlling them, and the profits to the Parent Company is a matter of easy calculation. For instance: computing, not from *theory*, but from *actual figures*, we find an average of over twenty passengers to the car, paying two dollars and upwards for the luxury of riding in a parlor or sleeping coach—each car earning forty dollars and upwards per day—many lines running every day in the year; but excluding all *Sunday* traffic and all rates *above two dollars*, and we still have considerably over twelve thousand dollars as the annual earnings of each individual car; and as there are more than ten thousand in constant use, the conclusion is too plain for argument. But figuring from a wholly different basis, we find an entire Western city, (Pullman, Ill.,) and several colossal private fortunes besides, growing out of the net earnings of one car company, while Mr. Wagner, of a rival line, retaining only a one-tenth interest in his inventions, accumulated four millions of dollars within fifteen years.

These figures point unerringly to the advantages and immensity of such a business; and by entering so broad a field at a time when there is almost unlimited travel, and with so many other points in our favor—with an immense demand already assured, it would seem that nothing short of the grossest mismanagement could make our enterprise less than a marvel of success; and to add to and doubly insure these certainties, and make the business complete in every sense, it is suggested that the company controlling the inventions should also hold titles to their factory buildings, together with a suitable number of cottages for their own workmen, as this precaution assures a steadier and unquestionably better class of operatives than the average run of itinerant mechanics; and as every move in this direction adds to the reality of the company, nothing can be lost by adopting the suggestion.

The *necessity* of providing a safety-car of some kind is plainly seen by looking over the figures furnished by the Bureau of "Vital Statistics," and various life and accident insurance companies, showing the remarkable death-rate from railroad accidents.

Additional figures, of a highly interesting character, showing the almost startling loss of Human Life and the immense destruction of cars by railway accidents, as well as the gigantic proportions of the Car-Building Industry, are being prepared by a competent Government official, and will be furnished later.





## CHARTER PRIVILEGES.

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The following quotations from the Charter granted to this Company show how broad and comprehensive are its powers :

“ARTICLE 2. That the purposes for which said company is formed is to construct, or to have constructed, railway cars; to manufacture machinery and implements; to buy, sell, or lease all rights, privileges, and concessions connected with the manufacture and sale of railroad cars, and also to manufacture, sell, and dispose of every thing, article, and appliance in any-wise connected with the management and operation of railroads, and also to furnish railroad supplies, and generally to transact any business appertaining to railroad matters.

“ARTICLE 3. That the said company shall have the power to purchase and hold, or receive by gift, in addition to the personal property of the company, any real estate necessary for the transaction of the corporate business, and also to purchase or accept any real estate in payment, or part payment, of any debt due to the company, and sell realty for corporate purposes.”

Many other privileges and advantages are granted to the company by this broad and comprehensive document, while article ninth shows—

“That no stockholder shall be personally or individually liable for any debt, contract, or obligation, or liability of said corporation.”

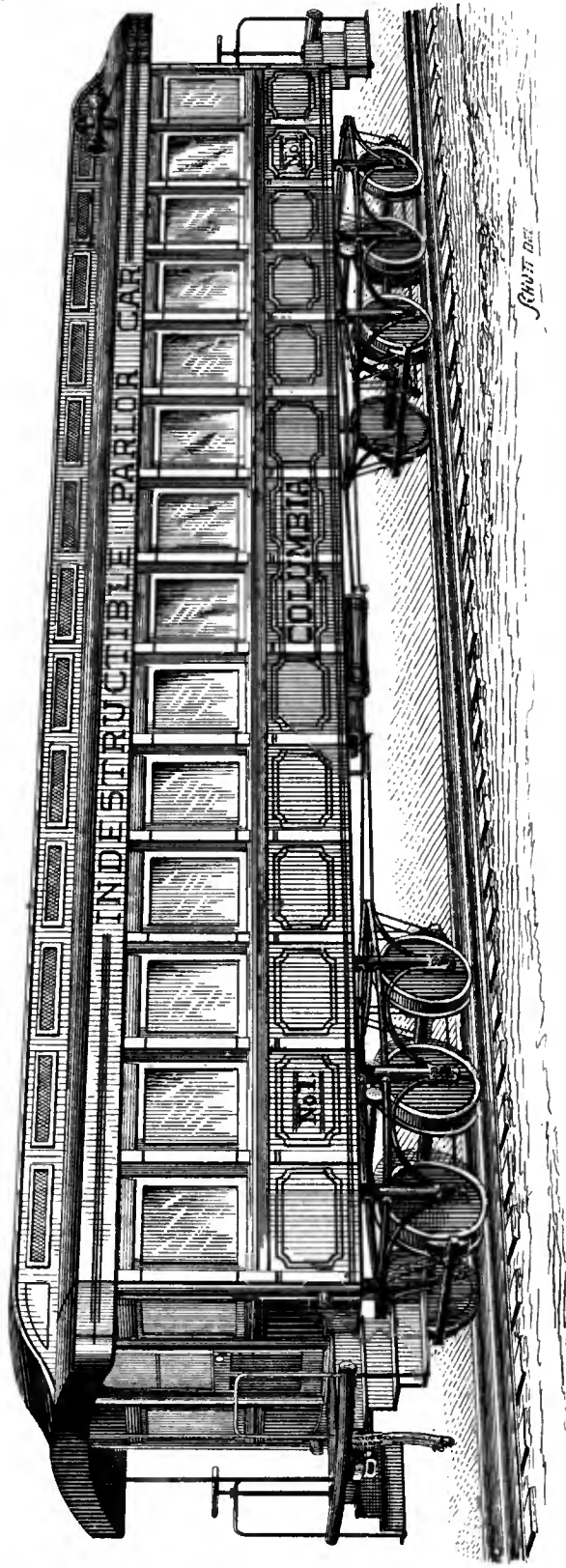




**This CAR is designed on the INDESTRUCTIBLE PRINCIPLE,**

**CONVENIENCE, COMFORT and LUXURY** happily combined with unusual **BEAUTY of FORM and FINISH** coupled with **ABSOLUTE SAFETY** to the traveller will render this **MAGNIFICENT COACH** a veritable **Palace on Wheels**.

Exteriorally it will be fashioned substantially as here shown, while its **INTERIOR FITTINGS** and **DECORATIONS** as designed are **UNEQUALLED**.



Its movements easily and completely controlled by my **LATEST IMPROVEMENTS in VACUUM BRAKES**: Its atmosphere freed from all impurities and carefully tempered both in **Winter and Summer** by the simple and effective devices for **Independent heating and cooling of Railway Cars**—fully described later on—and its many other appliances for rendering travelling a pleasure, places it so far in the lead that it is

**Beyond Comparison.**



—IF THE—

# SAFETY-CARS

Herein described were in **GENERAL USE**, the harrowing portion of the quotations below need not have been written. Scores of human beings now dead would have been protected, and one-quarter of the money value of property destroyed would build the **LARGEST** and **FINEST FACTORY IN THE WORLD!**



Quotations like the following, from reports after railroad accidents, plainly show the pressing necessity of **SAFETY-CARS**:

"The work of identifying the dead progresses slowly. The body of a man was found whose arms and legs had been burnt off, and whose distorted face bore evidence of the terrible agony he suffered. Another was found under a pile of trusses and rods; the head was burned to a cinder and every particle of clothing had been destroyed. Two children were taken from their mother's arms near the end of the coach; she asked that they be saved for their father's sake. Passengers tried to lift the woman from the burning wreck, but could not, for she was wedged beneath the broken seats; a moment after her dress took fire, and she was burned to death before their eyes. Low and stifled moans of suffering and terrible anguish could be heard on every side. But many who perished were killed outright, the car being telescoped at both ends."

"Two passenger trains in different parts of the country were consumed by fire recently in a single day, subsequent to collisions, and a number of human beings burnt to death. A few days before a similar accident, involving the burning of passengers, took place on a Southern road, and not long previous occupants of a sleeping-car in Canada were forced to flee for their lives from their blazing beds to the snow-covered ground, and shiver in the bleak winds until delayed relief came."

"A man from West Virginia was in the smoker with his two sons. On the spot where they sat was found a pulpy mass of charred remains, burned out of all resemblance to the human form. His wife and daughters escaped, but were frantic when they learned that the husband and sons had met with such an agonizing and terrible death. There was no use to attempt to recognize the dead, they were burned so horribly. There were twelve masses of blackened pulp found, but no one knew who they were, all clothing and papers being consumed. Another was pinioned between burning timbers—could not be rescued, and was entirely consumed in sight of the agonized survivors."

"Scores of hands are endeavoring to clear the track. Here and there could be seen spots of blood and pieces of half-burned and frozen human flesh, and workmen were finding portions of bodies in the burning wreck. All mail, express, and baggage cars were burned, involving large sums of money. Nine shapeless trunks of human beings were stretched out in a row, like so many charred logs, none of whom could be recognized, and near them a mass of flesh and bone, that may have been parts of the bodies of a dozen different human beings."

And all this within a period of sixty days; and much still that we know little or nothing about, as the following significant quotation in relation to another accident plainly shows:

"The names of the killed could not be ascertained, *as the men connected with the road refuse to give any information whatever.* But five bodies from the wreck were brought in last evening, and several of the badly maimed passed through *en route* to the hospital for treatment."

It is not pleasant to recall this ghastly record, and it would not even have been referred to but for the fact that A **PRACTICAL REMEDY** is at hand in the form of *cars* which cannot be **DESTROYED** by **ACCIDENT!**





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Such a total wreckage as the one illustrated on page 13, involving the sickening loss of human life, the maiming and roasting of helpless victims—hopelessly pinioned beneath the unrecognizable wreck of what were once fair samples of the cars now in daily use, could NOT have taken place, had these INDESTRUCTIBLE cars been on the road instead.

Is it not high time, therefore, that this most necessary change should be made?





OHIO.—THE RECENT TERRIBLE RAILROAD DISASTER NEAR REPUBLIC—SEARCHING THE RUINS OF THE WRECK  
FOR THE BODIES OF VICTIMS.

FROM A PHOTOGRAPH BY C. D. SPRAGUE.—SEE PAGE 375





## STOCK CERTIFICATES.

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The regular Stock Certificate of this Company (a *fac simile* of which is shown on the opposite page) is printed on the finest quality of bank note or bond paper, and, as is plainly stated on its surface, is *fully paid* and absolutely *unassessible*, so that in all cases the purchase price is the *final* one, and no one in anywise familiar with the comprehensive system of patents on which the Company is based can question the value of its capital stock as a *safe* and *paying* investment; its value being derived not alone from the monopoly guaranteed by such Letters Patent or the great ability and energy of the projectors of the enterprise, but largely from the fact that the time is fully ripe for some radical change in the old-fashioned theory or methods of car-building—a change which will render traveling by rail at least *reasonably* safe.

The alarming frequency of frightful railway disasters during the last few months has fully awakened the *People* to the necessity of protecting *themselves* against this seemingly wanton destruction of life and property; and, to enforce *some* practical change, has become substantially an imperative command; for the law-making powers, operating in harmony with the people's desire, have in some States *already* compelled the abandonment of the fatal fire-trap heretofore in general use; which legislation makes room for the adoption of *one* important feature in this chain of patent claims; and there is little doubt that other legislation will soon compel a general adoption of this class of safety railway coaches, both for travellers and for mail and express matter. And thus even the misfortunes of the past will inure to the benefit of the living through the agency of this Great Car Company; but even without the stimulating influence of special laws, the natural business rivalry between the Great Trunk Lines of the country will, beyond question, bring these safety cars into general use: for instance, the Pennsylvania Central should equip its peerless system of roads with cars unquestionably safe to travel in, cars in which passengers would have an absolute assurance of life—would not all sensible persons who travel give themselves the benefit of this precaution, and purchase tickets on this already popular road? and if so, in simple defence of their own monied interest, is it not easy to see that other roads must of necessity follow suit? And can *any one* question the fact, that the general change certain to follow would give this Great Car Company an untold amount of paying business in supplying the immense demand thus forced upon it? and is it not equally certain that this vast increase in its manufacturing business would give to the Company's Capital Stock such a wholesome boom as to command a handsome premium in the open market? And, therefore, considering the subject from a purely business point of view, those already investing believe that a Certificate in this Company is as *safe* as a Government Bond, and vastly more *profitable* to the fortunate purchaser.

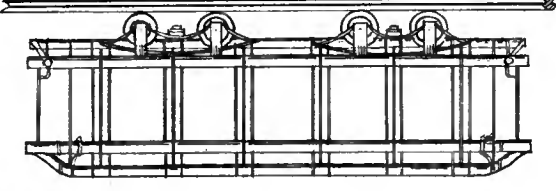
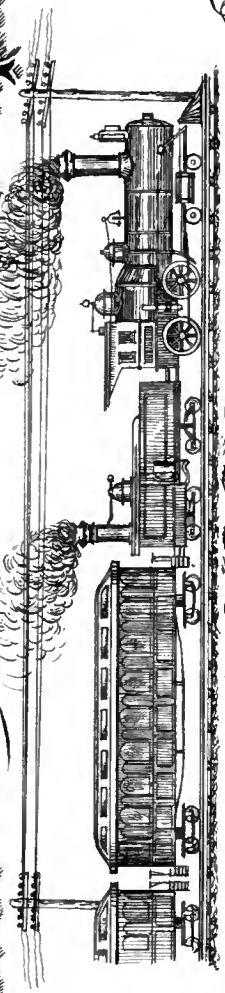
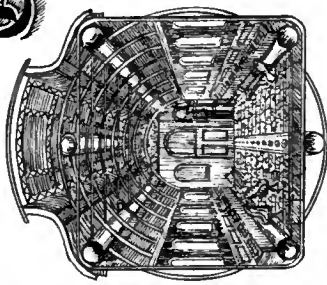
For further information, address "STEEL TUBULAR CAR COMPANY," Post-office box 679, Washington, D. C.

INCORPORATED UNDER THE LAWS OF THE STATE OF VIRGINIA

SHARES PAR VALUE \$100 EACH

SHARES

# The Steel Tubular Car Company



Issued in payment of *Property purchased*  
This is to certify that

is entitled to \_\_\_\_\_ Shares of the **FULL PAID** and **UNASSESABLE**  
**CAPITAL STOCK OF THE STEEL TUBULAR CAR COMPANY.**  
Transferable only on the Books of the Company in person or by Attorney  
on the surrender of this Certificate.

In testimony whereof the said Company have caused this **CERTIFICATE** to be signed by their *President*  
and *Treasurer* and sealed with the Company's Seal.

Washington, D. C.

18

Treasurer

President



CAPITAL \$5,000,000

E. B. Mac Guffey, Sec. &c.

1





## ENDORSEMENTS.

Capt. THOS. W. SYMONS, *Engineer Corps, U. S. Army*, says:

"The strength of the car arises from the application of the well-known engineering facts concerning the superiority of the hollow cylindrical pillar or tube over any other disposition of material to resist disrupting forces similar to those which would assail a railroad car in case of accident. The longitudinal strength of the car to resist the telescoping effort of a collision is given by six steel tubes running the entire length of the car. If these are of the proper quality of steel and of sufficient weight, and bound together by steel ribs, as in the model, I am convinced that under *no* circumstances could it be telescoped or crushed longitudinally. The encircling steel ribs, beside aiding to develop the strength of the longitudinal tubes, would have a mission of their own—to prevent the car from being crushed in case it were thrown from the track and rolled down an embankment; this I believe they would do with complete success, and would be fully capable of resisting any strain which could thus be brought upon it.

"Besides the great strength given to the car by this rigid tubular framework of steel, the telescopic spring buffers will materially limit the damage to the car and its inmates in case of collision.

"I can see no reason why the cost or weight of cars constructed upon the plan proposed should materially exceed those of cars of the ordinary kind, while there can be no *possible* doubt of their *vastly superior strength* and the safety of their contents."

General DUANE, *Chief Engineer U. S. Army*, says:

"I have examined a model of the car referred to in the above report. The design displays great ingenuity and skill in selection and arrangement of material, and I am satisfied that Captain Symons is fully justified in his conclusions as to the strength and endurance of the structure."

In the report of A. G. MENOCAL, *Chief Engineer U. S. Navy*, the following language is used:

"I have examined the various ingenious and interesting devices of your invention for the construction and improvement of railway cars. I have been particularly impressed with your design for the framing of the car as represented in the drawings and specifications. I believe that the form and disposition of the transverse frames and their combination with the longitudinal tubes present such a judicious disposition of material as will insure the greatest strength."

Col. J. A. MARROW, a man of unusually extensive experience both in military and civil life, says:

"I have been a practical railroad man for over twenty years; have personally witnessed the sacrifice of many lives and the destruction of much valuable property, and have often seen and spoken of the necessity of *safety* cars.

"In point of economy alone, I believe that it would amply pay railroad companies to adopt some saving measure, though I have never before seen presented a *FEASIBLE* plan for accomplishing the hoped-for result. But I have carefully examined your invention, and am particularly impressed with the practical manner in which you have combined the transverse and longitudinal tubes in your framework, and fully believe that a car constructed on this principle



will possess sufficient resisting strength to overcome any destroying force which can be brought against it in collisions or other railroad accidents; and your proposition to use non-combustible material in place of the inflammable matter now in common use for covering and finishing cars will relieve passengers of their greatest horror—that of being roasted alive while traveling, and will make your structure all that you claim it to be—*absolutely a safe means of transit.*”

Maj. Gen. WILCOX, who was sent abroad to represent the United States Government at the French Polytechnic Institute, and who spent much time among the ablest foreign engineers, says:

“I have carefully examined the model of an indestructible car, patented by J. W. Post, and believe that the disposition of the metal used in the framework is such as to produce the greatest possible resisting force. The immense strength of metal in a tubular form is broadly conceded by all mechanical and scientific engineers, and the inventor seems to have adhered to the tubular principle not only in using tubes almost exclusively in his construction, but carefully arranging and grouping them in such a manner as to produce one great skeleton tube in form of a completed car; and his claims as to its great resisting power in case of collision, or other accidents common to railroads, I believe to be *fully sustained*. I believe, also, that cars built upon his plan would prove cheaper in the end than as now constructed.”

The following fully explains itself:

“J. W. POST:

“MY DEAR SIR: I have been a practical railroad engineer, master mechanic, and car builder for thirty years; have had great experience in the purchase and use of all materials needed in the construction and finish of railway cars; am thoroughly acquainted with the tensile, lateral, and resisting strength of all metals, and fully understand the proper combination of material to safely withstand the greatest strains or the severest shocks; and after a minute and thorough examination of your model for an Indestructible Car, and bringing to bear upon the subject all the knowledge attainable in a long and varied experience, I have no hesitancy in pronouncing your happy combination of materials used the most perfect of any heretofore devised, and fully believe that cars constructed on this principle will not only be safe in every respect to travel in, but, in addition, will outlast all others, and in the end prove infinitely the cheapest for railroad companies.

“Yours truly,

“GEORGE H. CLARK.”

Several other equally strong endorsements are in the hands of the inventor.





Thirty-five pages of drawings, including more than seventy separate figures, partially illustrate, in detail, this important discovery, it being covered and protected by upwards of ninety distinct claims.

Page 25, Fig. 1, is a side elevation of the entire skeleton or framework of the car ready to receive the covering and finish.

Fig. 2 is a top plan view of the same, one platform being omitted.

This mode of construction produces a car-frame peculiarly light and graceful in appearance, and in point of strength and durability *beyond comparison*.

All important claims to superiority, particularly in the manner of constructing the framework, are warmly endorsed by well-known experts, including able Military, Civil, Mechanical, Naval, and Railroad Engineers.

Some of the special features of the finished car, which render it the most complete vehicle for luxurious traveling yet known, are briefly mentioned further on. And when all these important advantages are added to a perfect consciousness that no danger to life is *possible*, the pleasure is doubly enhanced, and the excursionist must necessarily feel that in *real value* the extra dollars expended are fully returned; and this belief will doubtless increase railway traffic far beyond its present enormous aggregate.



Fig. 1.

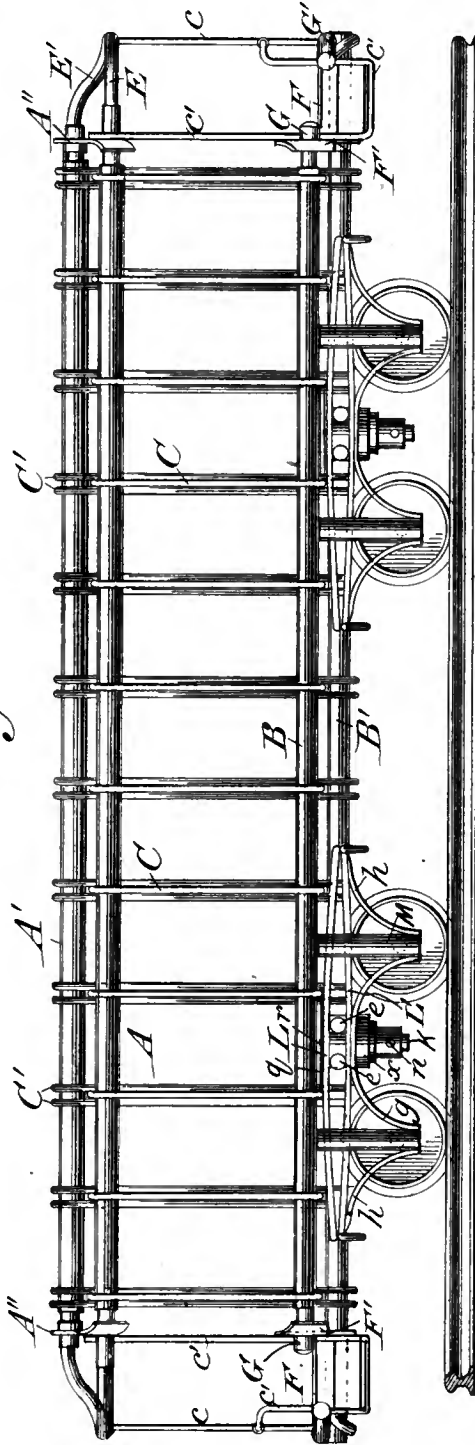
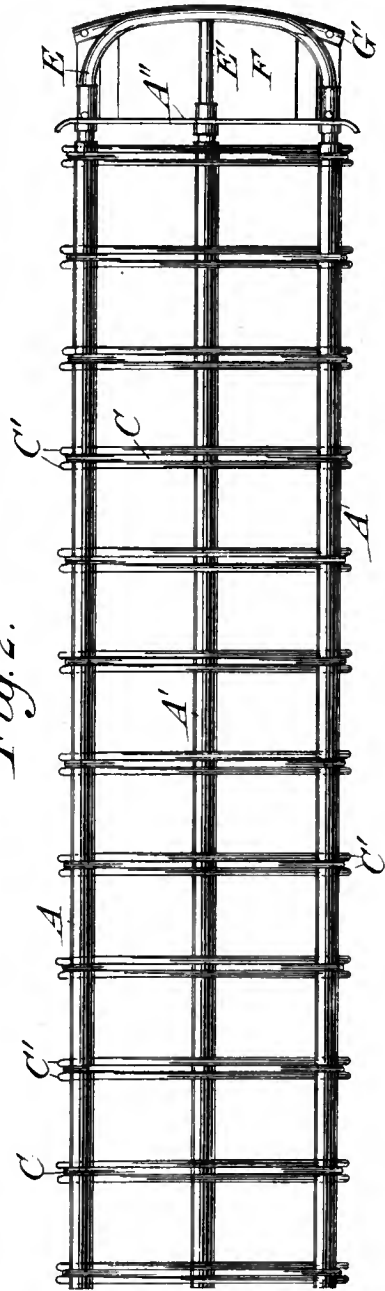


Fig. 2.











Page 29, Fig. 7, is a bottom plan view, one truck being omitted to show the king-bolt and flanged bearing surfaces  $x$  and  $q$ , also the buffer H.

Fig. 8 is a longitudinal view of the buffer and coupler, showing the strong coiled spring behind the buffer; also, one of the several means of attaching the coupler to the continuous drawbar.

Fig. 9 is a bottom plan view of the coupler, from which it will be seen that it is automatic in action, very strong, and exceedingly simple.

Fig. 10 is a top plan view of a section of the framework, showing the edge of the outer casing or siding of the car.



*Fig. 7.*

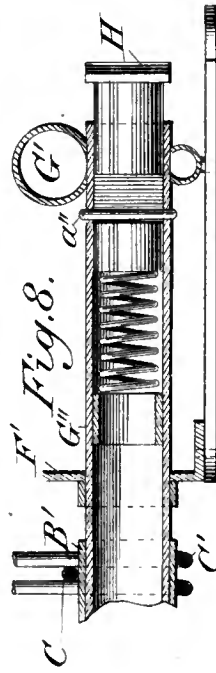
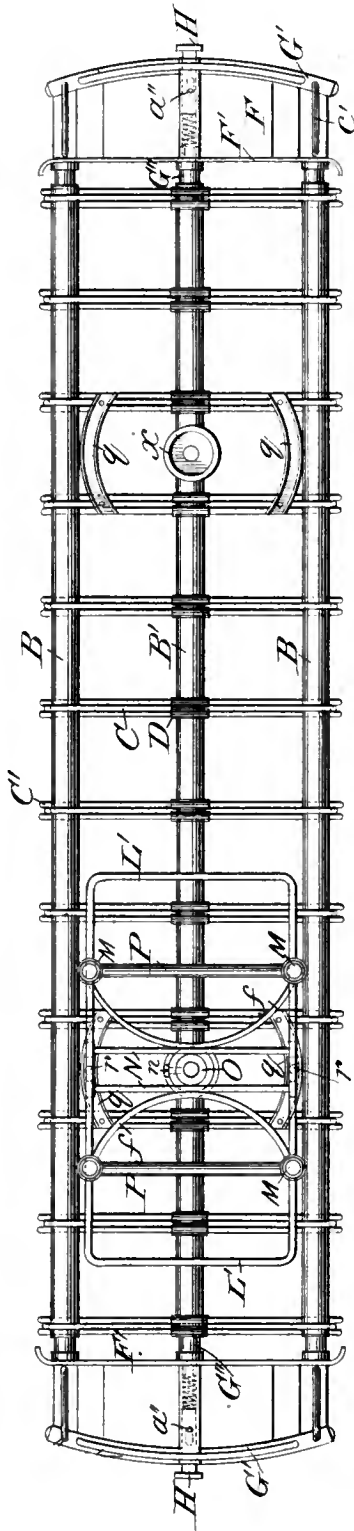


Fig. 9.

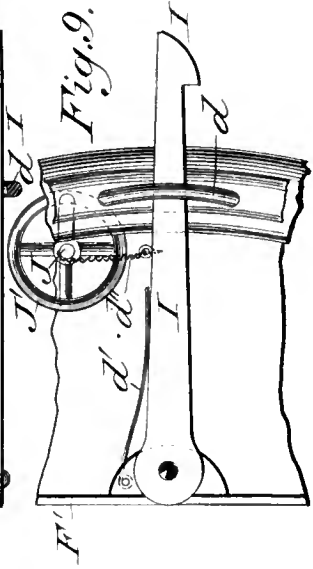
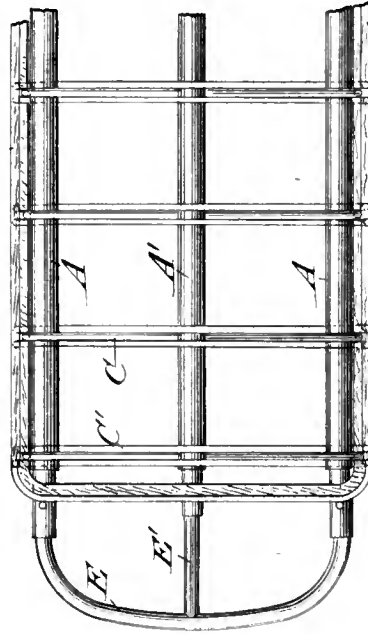


Fig. 10.









On page 33, Fig. 1, is a side elevation of a section of the tubular framework, showing one truck and one platform.

One of the large longitudinal tubes being broken away to show the short platform<sup>tube</sup>  $A^1$ , fitted within and abutting against the coiled spring  $c$ .

The pin  $a^1$  passing through both to hold the platform in proper position.

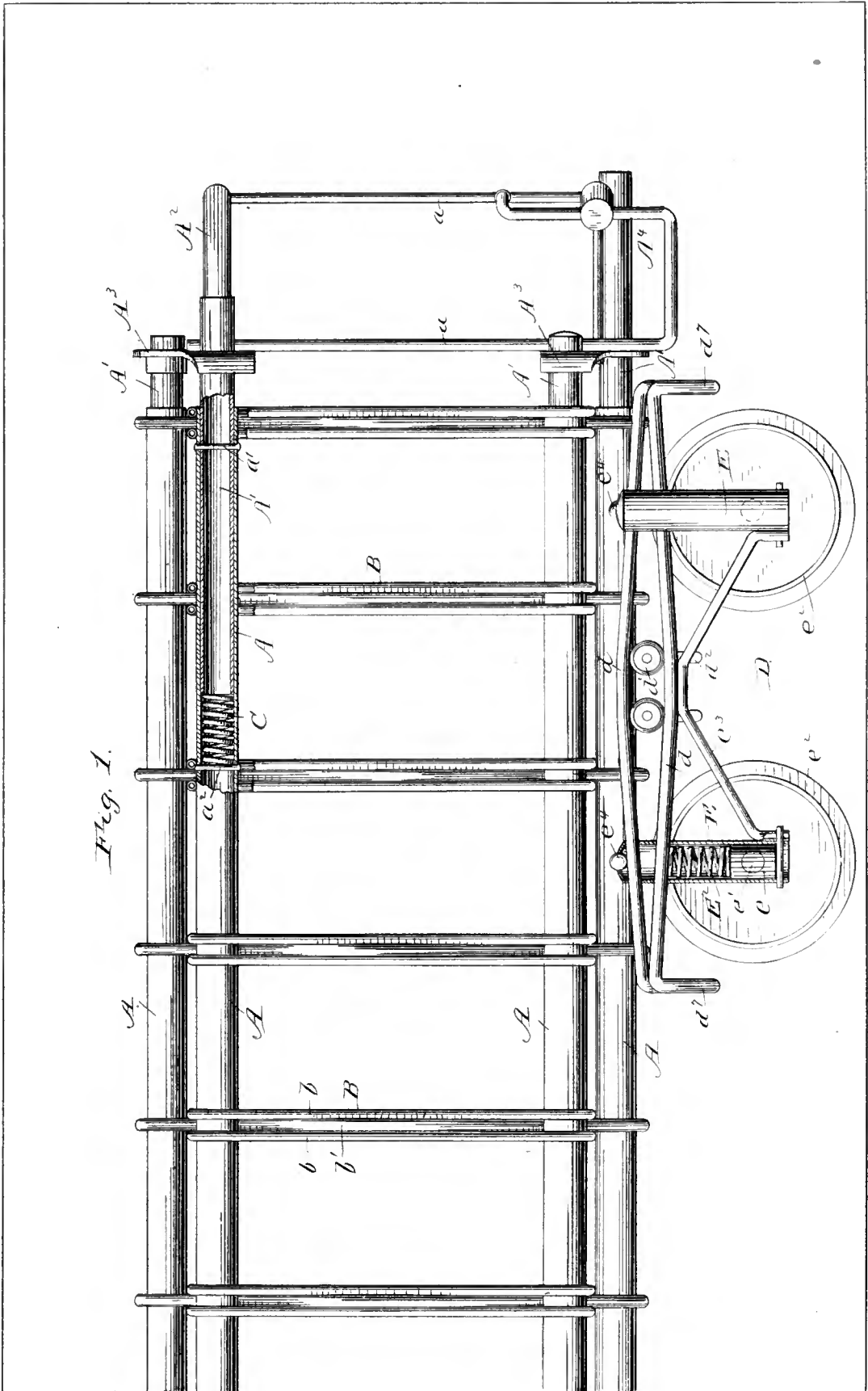
One of the tubular casings or pedestals of the truck is also broken away to show the axle-bearing and coiled spring within.

The ball-bearing  $e^1$ , at the top of the pedestal, on which the car is steadied to prevent excessive rocking movements, is also seen.

In this figure it will be noticed that the groups of transverse tubular bands consist of two rectangular in form and one a complete circle or ring, while on



Fig. 1.











Page 37, Fig. 3, the order is *reversed*.

By the construction here illustrated *two* of each group of transverse bands or ribs are complete *circles* and *one* *rectangular*.

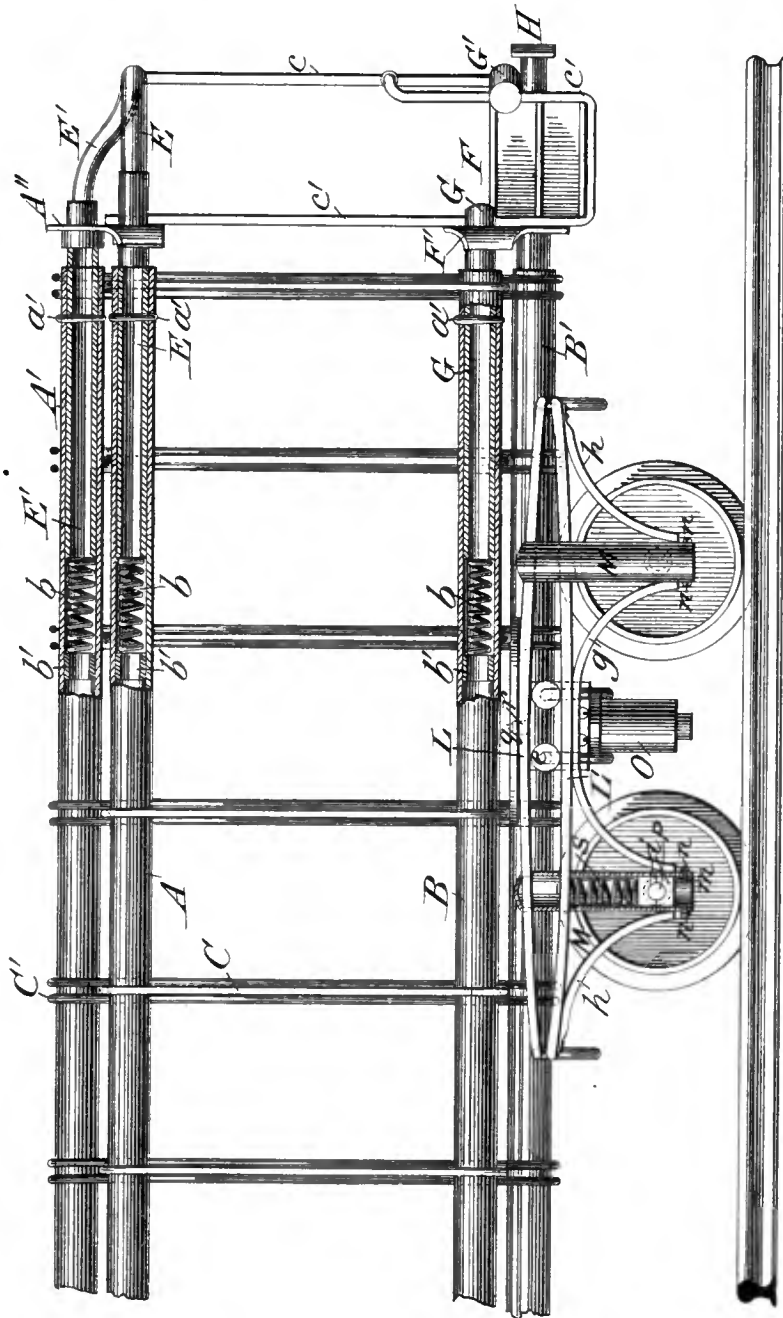
The double number of *circular* ribs adding considerably to the lateral strength of the car without increasing either cost or weight. In this figure three of the longitudinal tubes are broken away, exposing the interior tubes or platform supports.

An auxiliary brace is shown on the outer end of the truck framework, bearing against the lower end of the vertical casing or pedestal, thus doubly strengthening the bearing of the axle, and an additional tube, E, bent to suit the curvature of the roof, considerably strengthens the hood overhanging the platform.

In this view the buffer H is shown at its extreme outward limit, the inward movement when striking the opposing car being somewhat less than the distance between the hoods above, and fully protects them from abrasion during ordinary contacts with each other.



*Fig. 3.*





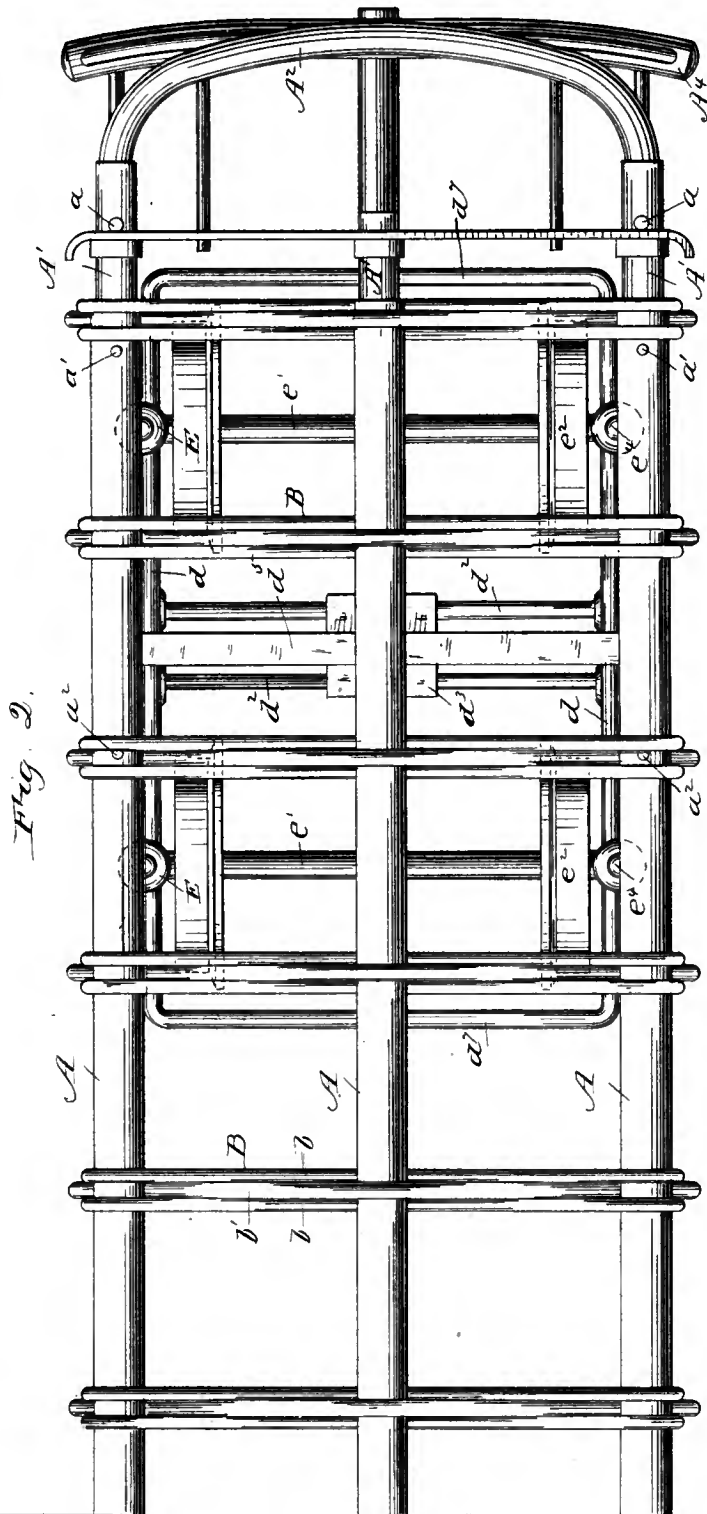




Page 41, Fig. 2, is a top plan view of a section of the framework, showing the relative widths of the car and the trucks.

In this view the platform is partially drawn out, showing the relative size of the interior tubes supporting the platform and the exterior or longitudinal tubes forming the lineal portion of the main framework.













Page 45, Fig. 3, is a transverse section showing the relative size, shape, and position of all the tubes composing the framework, from which it will be observed that four of the longitudinal tubes, forming the sills and plates, are *inside* the transverse *rectangular* tubes and just *outside* the periphery of the *circular* ribs, while the central longitudinal tubes, at the top and bottom of the car, are *inside* the *circular* and *outside* the *rectangular* transverse ribs or tubular bands, interlacing each other in such a manner as to intersect at twenty different points, where they are firmly brazed, clamped, riveted, or bolted together.

This systematic interweaving so thoroughly strengthens both the transverse and longitudinal tubes as to render crushing, either by side thrusts or end concussions, next to *impossible*.

In this figure we show the simplest-known connection of the truck and car—a plain bearing and an ordinary king-bolt.

Fig. 4 is a perspective view of a tubular truck in its simplest form—light, cheap, exceedingly strong, and durable.



Fig 3.

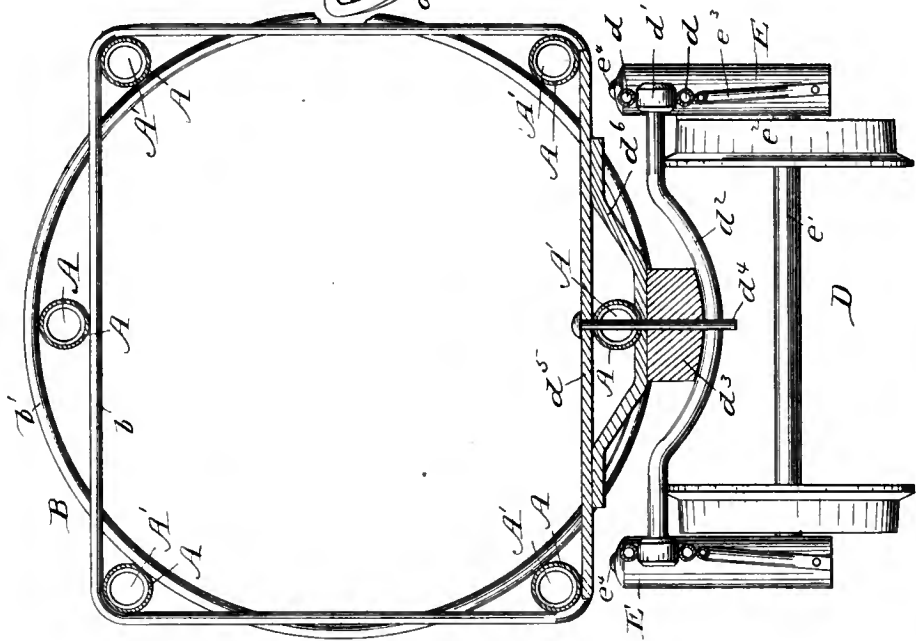
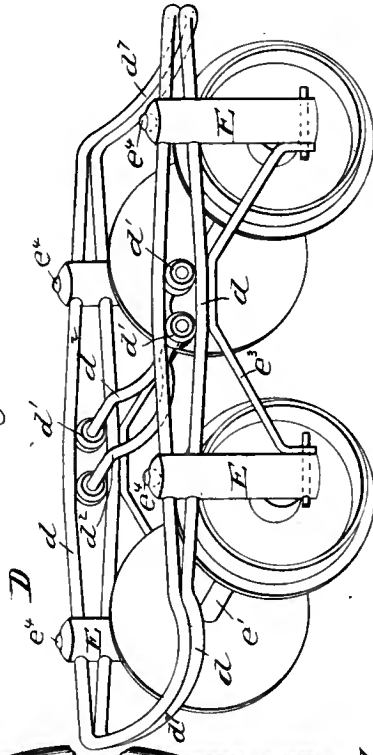


Fig 4









Page 49, Fig. 4, shows all the essential features of Fig. 3, page 45, and in addition the improved king-bolt, with its protecting flanges or dust fenders *x*, also the flanged bearing-surfaces *g*, overlapping the steadying discs *r*, projecting upwardly from the bridge of the truck.

These discs are more plainly shown in Fig. 5.

Fig. 5 is a perspective view of the improved truck, showing supplemental braces *h* and *f*, and the wearing discs *r*, for steadying the car or preventing its rocking movement while turning short curves or running over uneven roads.

Fig. 6 shows an improved means of uniting the transverse ribs or bands *a*, the ends of each being fitted into the block *D*, the lower longitudinal tube or continuous drawbar *B* passing at right angles through the same integral block *D*. This thorough union of all the tubes adding greatly to the strength, but very little to the cost of the car.



Fig. 4.

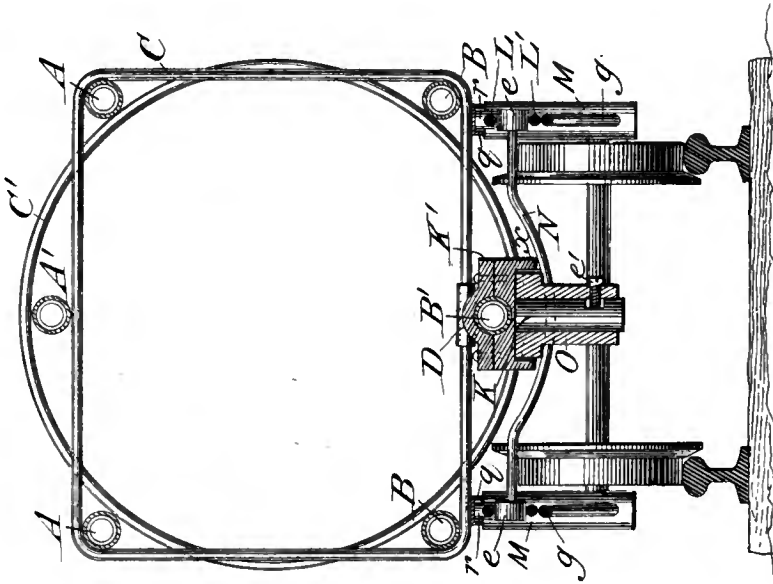


Fig. 5.

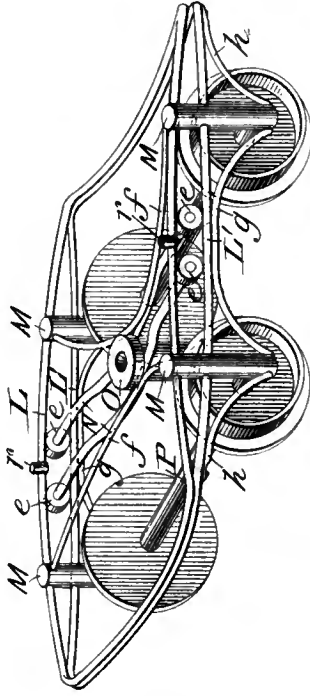
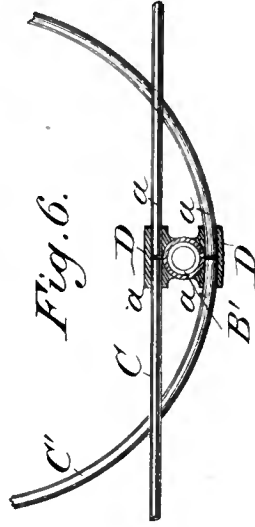


Fig. 6.











Page 53, Fig. 1, is a perspective view of the exterior of an indestructible car complete—simply but substantially finished.

As seen by this figure the hoods projecting over the platforms slightly overlap the roofing of the body of the car, and are fastened in that position by small rivets or any other well-known methods sufficiently firm to retain their respective places, except in case of collision, in which event these minor fastenings give way without materially injuring the main roof.

The curved vertical corners of the car also give way in a similar manner, so that even though the collision is severe enough to entirely crush the *platform*, neither the framework, the covering, nor casing of the car proper are materially injured.



Fig. 1.

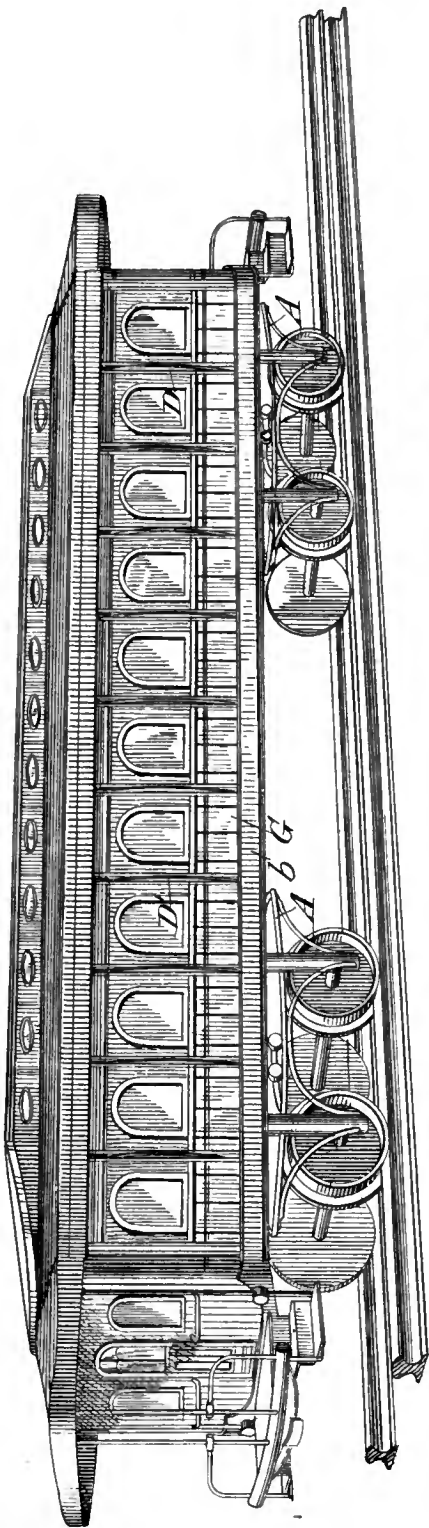
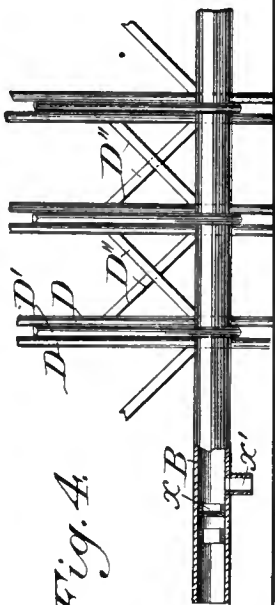


Fig. 4.









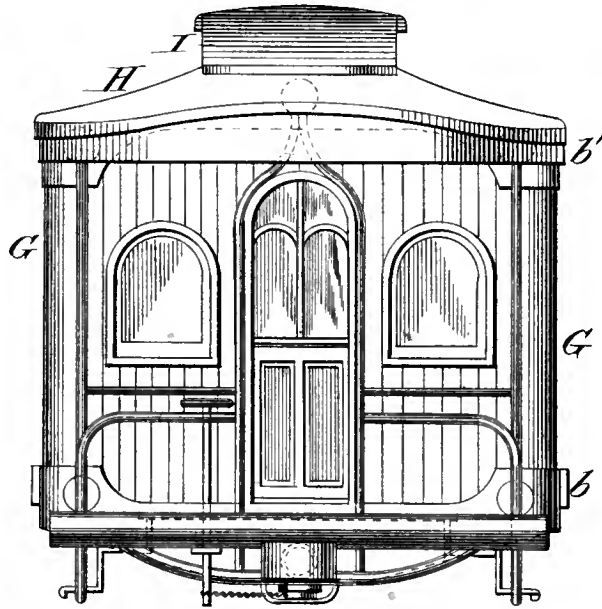
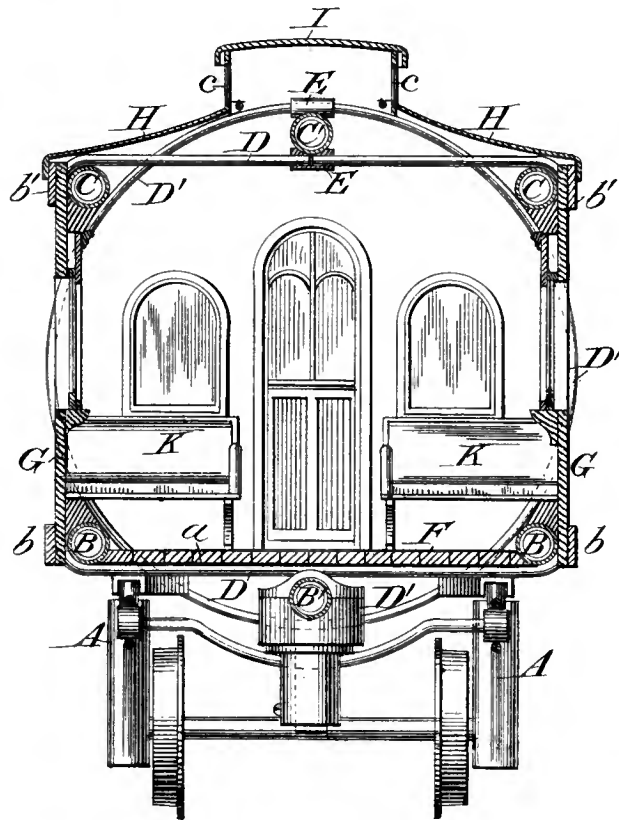
Page 57, Fig. 2, is an end elevation, showing one of numerous styles of exterior finish for an indestructible car.

It also shows one of the simplest known devices for releasing the coupler.

Fig. 3 is a transverse vertical section on a line with the central portion of the truck, showing the relative position of the entire framework, covering, and finish of a completed car; plainly showing also the flanged bearings overlapping the wearing discs on the bridge of the truck for preventing undue oscillations.

This figure also gives a fair idea of the immense strength of the improved king-bolt, as compared with others now in use: this being an important feature, when we remember the terrible strain to which it is subjected whenever the brakes are suddenly applied.



*Fig. 2.**Fig. 3.*







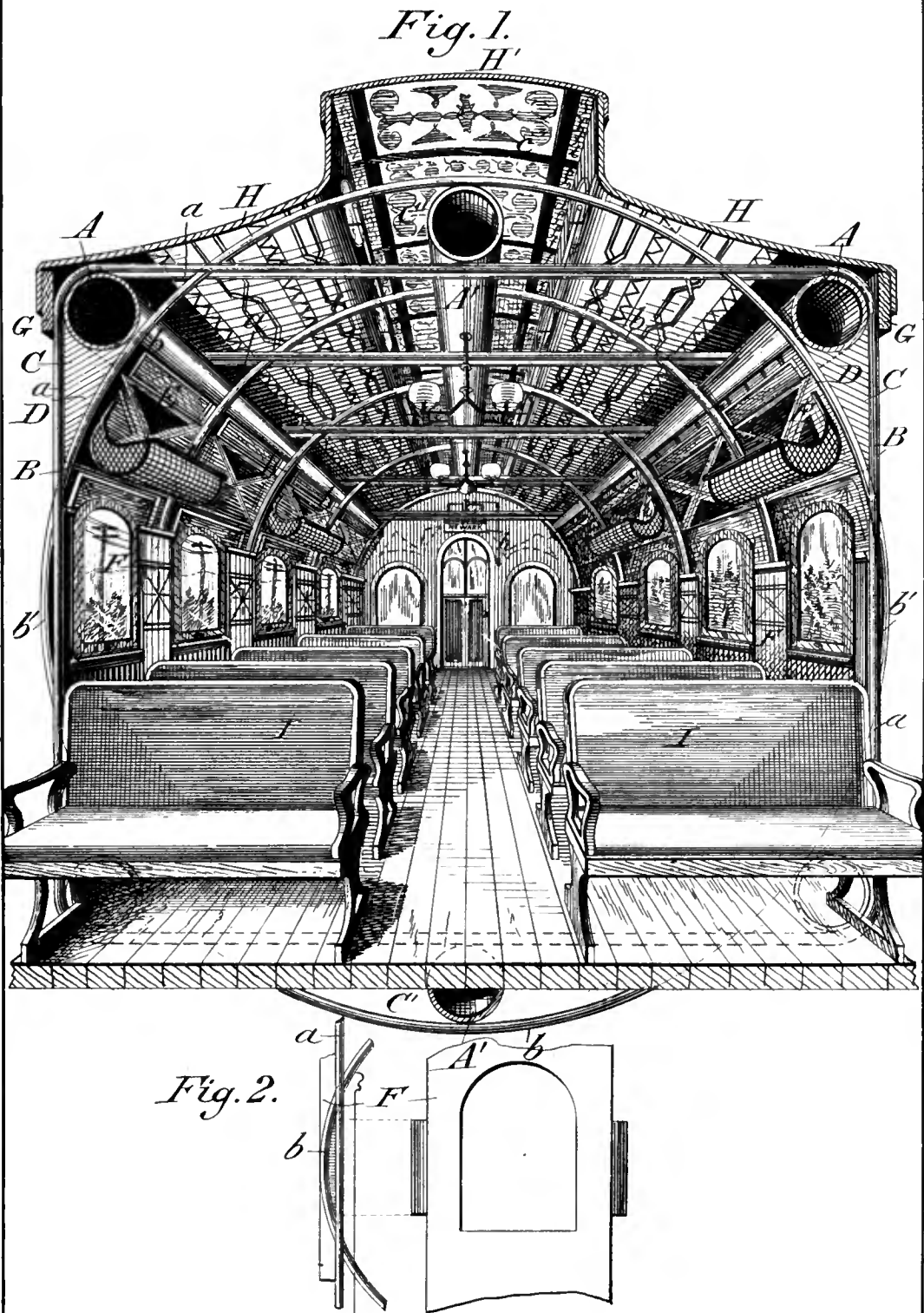


Page 61, Fig. 1, is an interior view of an ordinary day coach constructed on the indestructible principle, showing the station indicator in its proper position above the door.

This indicator is more fully described further on.

It is of course apparent that the general finish and interior decoration can be varied almost infinitely to suit the various tastes of either builders or purchasers.







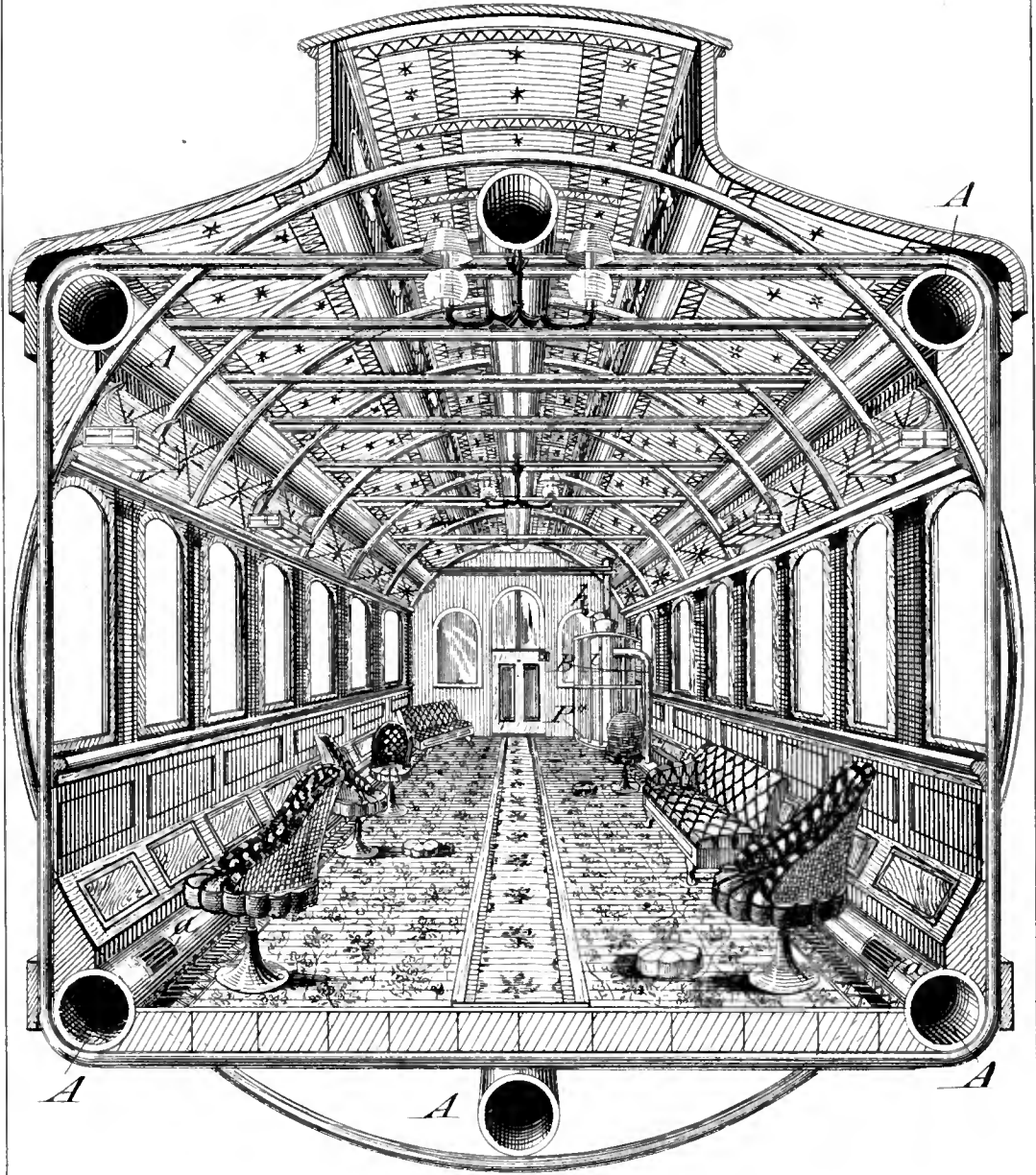




On page 65 is shown the interior of a plainly-finished parlor car, with the furnace placed in position, its hot air or steam pipes-connecting directly with the lower longitudinal tubes, forcing the heat along the entire length of the car, from which tubes it can be withdrawn at will at any desired point, by the passengers themselves, by simply opening the registers *a a*, these registers being placed at convenient intervals along the base of the car. It being a fact well known that some persons require much more artificial warmth than others, it is apparent that this complete device fully meets the exigency, and places the regulation of the matter in the hands of those directly interested, without the necessity of meddling with the furnace or source of supply, these local registers being opened or closed as easily as the opening and closing of an ordinary fan. A fuller description of this improved heating apparatus is given on another page.

In the summer time both the upper and lower longitudinal tubes can be utilized as cold-air ducts, the cold air being forced through by either the movement of the train or by special mechanism connected with the locomotive, cinders and other impurities being excluded by suitable screens or fenders placed over the hood, which collects and transmits the air to the proper channels. It will be readily observed that by this construction we have a roomy and comfortable car, possessing all the essential elements of a luxurious home parlor, the assurance of *absolute safety* of course adding much to the general feeling of comfort.







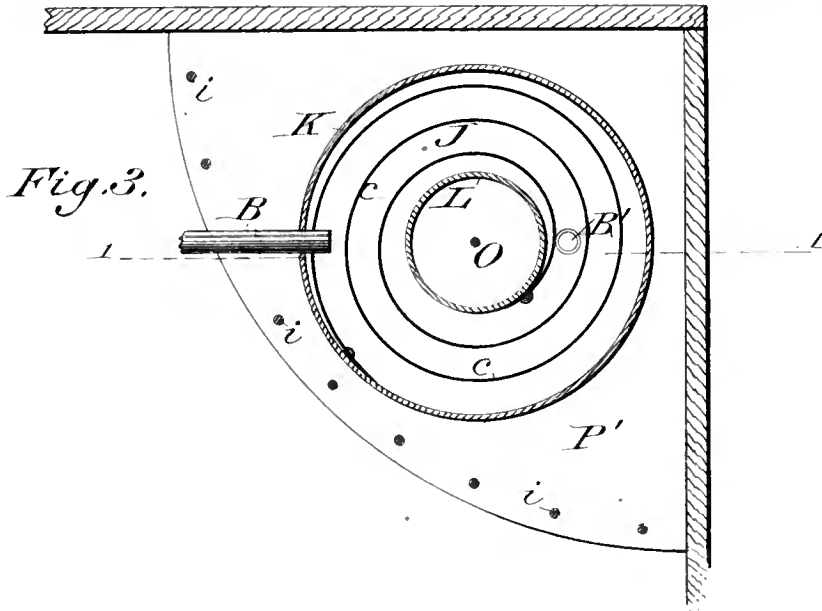
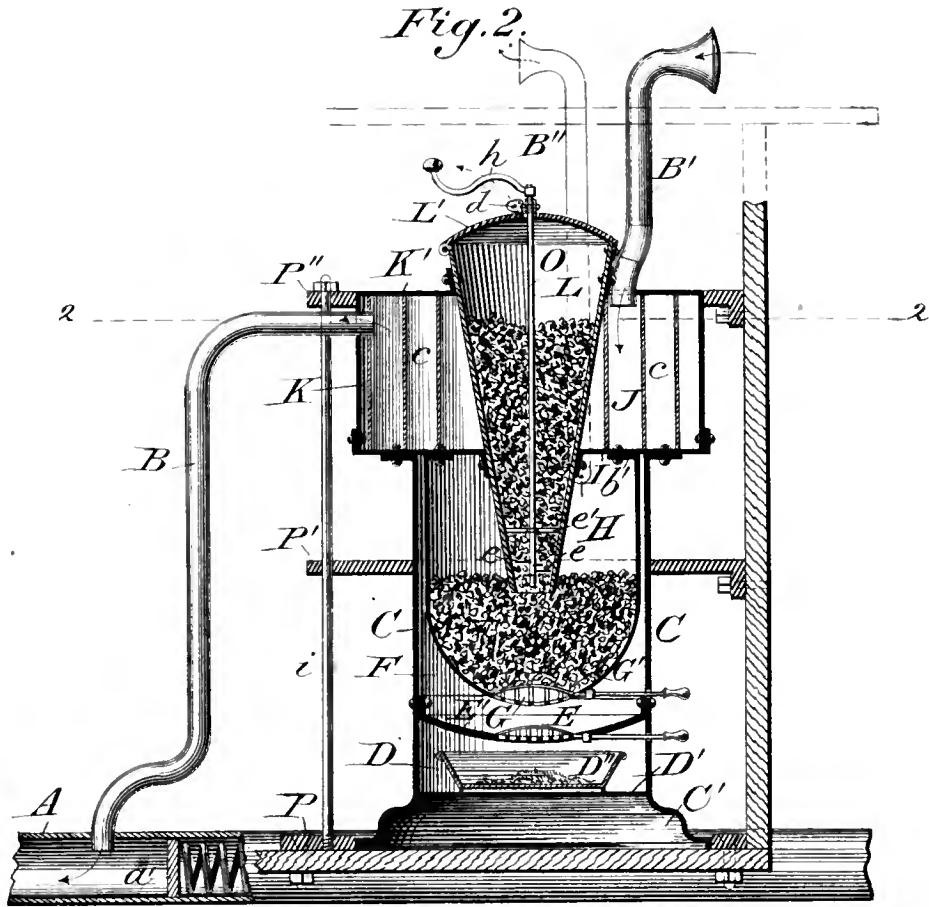






Page 69, Fig. 2, is a vertical central section of a safety-furnace for railway cars. It is constructed with an outer cylindrical casing of boiler-iron, C, strongly riveted to a base of the same metal, C', and to the heavy metallic plate which forms the top of the furnace proper and the bottom of the hot air or steam chamber *c c*. It is provided interiorly with a heavy cast-iron fire-pot, H, also strongly riveted to the same upper plate. A heavy grate, with handles for shaking it, discharges the ashes and cinders into a closed chamber immediately below the fire-pot, where they can remain until partially cooled, when they can be resifted through the lower and finer grate into the ash-pan below and removed at will. This resifting thoroughly separates the ashes and hot cinders, and when the ashes are removed and the pan replaced, the cinders can be dumped into it and allowed to thoroughly cool before removing. This precaution greatly lessens the liability of fires from careless handling. A funnel-shaped magazine, L, is securely riveted to the top and bottom of the hot-air chamber, and will hold a coal supply sufficient for a twelve-hundred-mile run. It is filled only at terminal points, where it is put in order and the fire lighted by the local fireman, and the door and cover securely locked by him before starting the train. Therefore, in no event, can any passenger trifle with the fire during the journey, except to open or close the drafts. The lower end of the coal-reservoir is made so small that, even if the car should turn completely over, no appreciable amount of burning coal could fall back into it, and as the flue for escaping gas and smoke has an automatically closing valve, it is apparent that in no case can the fire come in contact with the car. By rotating the vertical shaft O the short projections near its lower end loosen the coal, which readily falls into the fire-pot below. The heat from the burning coal communicates directly with the hot air or steam chamber above, and is thence conducted to the various parts of the car, as already described. The cold-air supply comes in at the inner space of the helicoid J, and is thoroughly heated before reaching the escape-pipe B. Fig. 3 is a top plan view of the helicoidal or spiral partition of the hot-air chamber; also the horizontal bracket P', by which the furnace is securely held in position, more fully described on page 73.







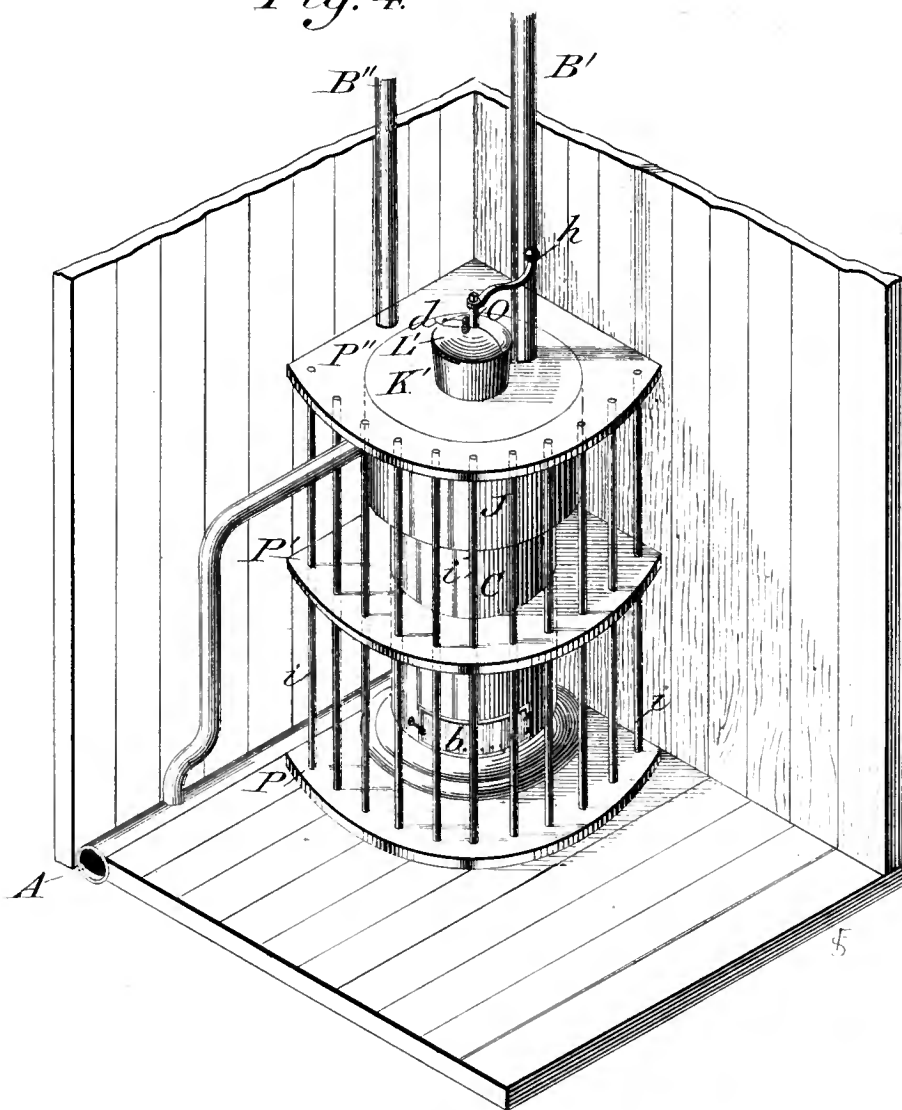




Page 73, Fig. 4, represents this improved furnace in proper position in the corner of a car. The horizontal bracket P, firmly clasping the base of the furnace, is strongly bolted to the floor. The central bracket  $P^1$  surrounds the body of the furnace and is securely bolted to the sides and end of the car, as is also the upper bracket  $P^2$  surrounding the hot-air chamber. The tubular fenders  $i$  are rigidly screwed into both the upper and lower brackets by a right and left-handed thread, when the furnace is placed in position. The purpose of these fenders being to prevent personal contact with, or injury from, the heated furnace in case of accident, while in nowise interfering with the natural radiation of the heat.

As will be readily seen, this compact and simple device furnishes a thorough and reliable heating apparatus, immovably fixed in position, easily understood and operated, perfect in action, cleanly in its nature, and *absolutely safe*.



*Fig. 4.*









Page 77, Fig. 1, is a top plan view of a combined sleeping apartment and day coach, the sections C being enclosed at will by a slatted partition, which is formed of vertical slats of asbestos board, or any suitable material, secured pliantly together by wire loops, strong canvas, or other methods, and so arranged that they can be rolled up on upright cylinders whenever not in use.

The operation being as simple as the adjustment of an ordinary window blind ; that is to say, whenever it is desired to inclose a section, the car-porter or passenger simply pulls the roll horizontally in line with the groove in the floor, and hooks the loop attached thereto over a receiving pin on the opposite side of the section.

A corresponding groove just under the ceiling of the car overlaps and steadies the upper end of said partition. This brings the door just opposite the space between the seats, where it can be opened or closed whenever desired by the occupants of that section ; and as suitable fastenings for this door are on the inner side, it is obvious that all the privacy obtained by expensive state-rooms may be enjoyed therein ; while, if desired, during the daytime, the partition may be rolled back, and all the advantages of general association with companions or fellow-travelers may be obtained as fully as in an ordinary parlor or sleeping car. It is apparent, of course, that these coiled partitions may, if desired, be placed in a horizontal as well as a vertical position, without departing from the principle of this invention.



Fig. 1.

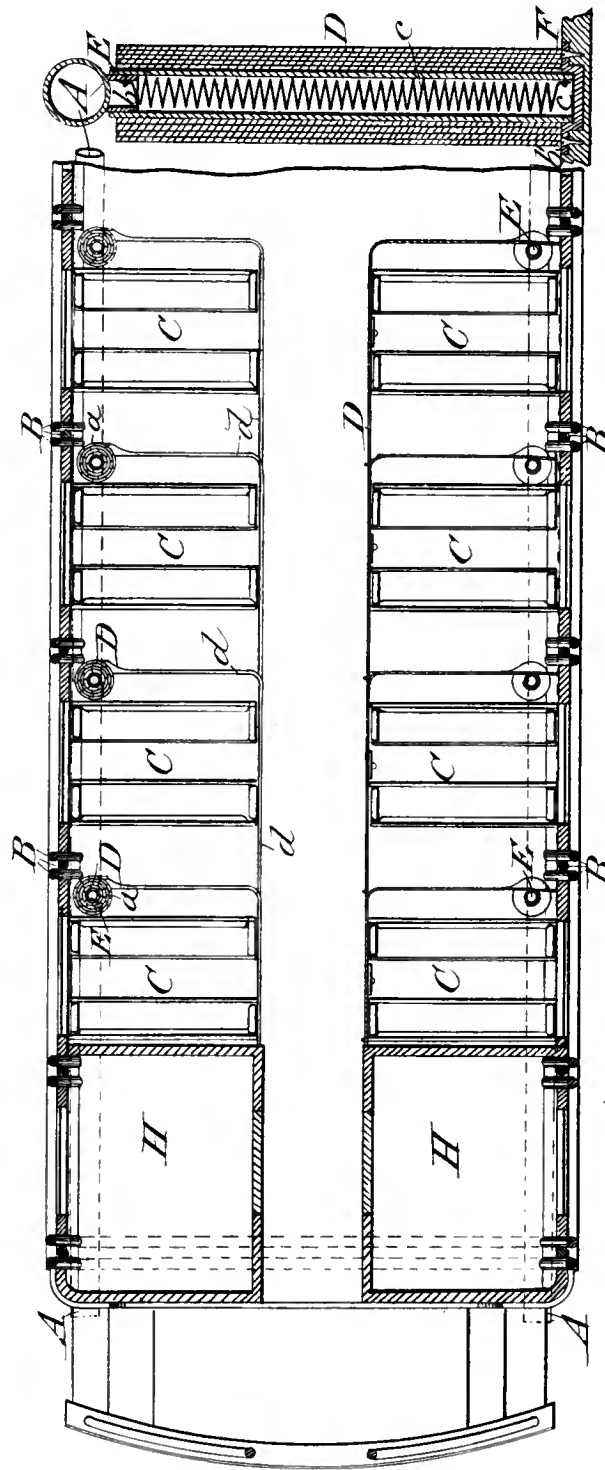


Fig. 4.









Page 81, Fig. 2, shows two open and two closed sections of the apartment car, the adjustable bars *x*, indicated by dotted lines, being turned crosswise on one of the doors, as is necessary to properly steady it when in use, and turned lengthwise of the slats on one, as is necessary when it is desired to roll the partition back.

Fig. 2 also shows a vertical section of an improved ventilator in the monitor or hooded portion of the roof, the improvement consisting of a longitudinal rod or bar hinged to a suitable projection from the lower portion of each ventilating window, all being opened or closed simultaneously by a simple movement of the vertical lever *N* to the right or left, as desired.

Fig. 3 is a top plan view showing the ventilator partially open. This simple and effective device saving the train-men much trouble; as, for instance, when approaching a tunnel, they can instantly and easily close them all from either end of the coach, and whenever it is desired to have them opened again all are opened alike, and a uniformity of temperature is attained throughout the entire car.



Fig. 2.

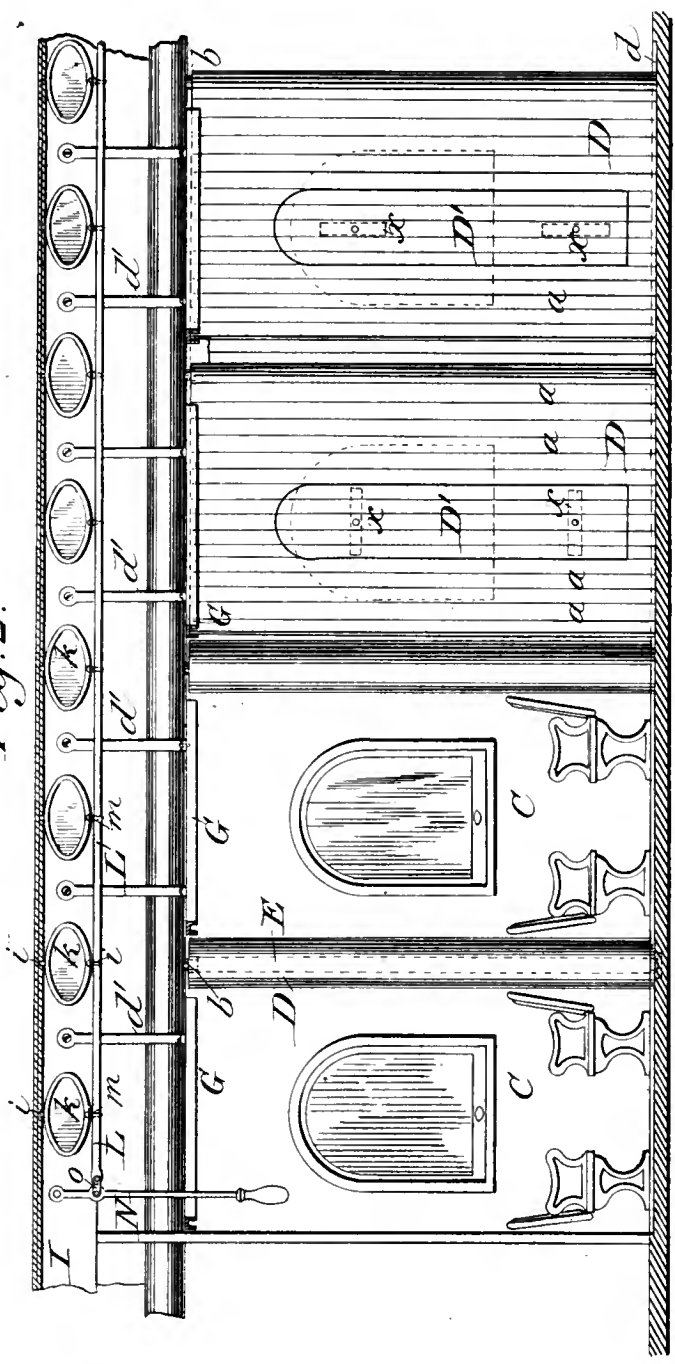
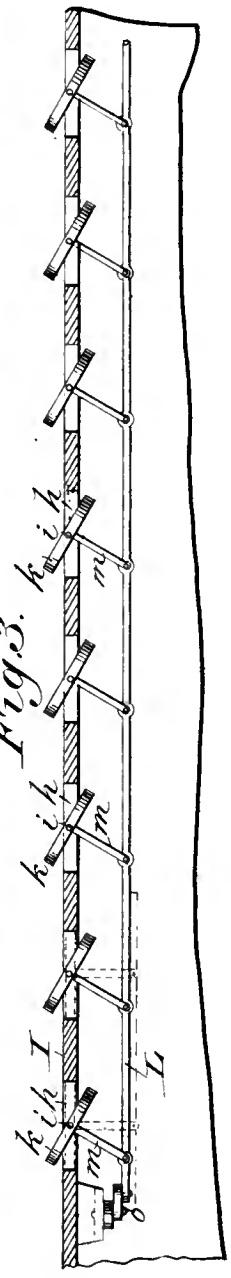


Fig. 3.











Page 85, Fig. 1, is a perspective view of a station-indicator, consisting of a series of strong cards with the name of each station on the route plainly printed thereon. These cards are placed in a horizontal position over the doorway before starting the train, being thus held by a suitable wire framework.

The operation is very simple. Rocking the latch M, (more plainly seen in Fig. 2,) either with a bell-pull or a key, as provided in the patent, releases the front edge of the lower card, which, by its own gravity, falls into a vertical position, plainly displaying the name of the station at which the train will next stop.

The upper spur of the latch advances as the lower one recedes and checks the fall of the next lower card. The spring S immediately throws the latch back in place, when the then lower card drops onto the lower spur, and is there held until the next station is passed, when it is released by a second rocking of the latch, and drops into a vertical position like the first, plainly displaying the name of the *second* station, and so on to the end of the journey. The advantages of this system are plainly understood—it being well known that very few people really comprehend what the train-men say when calling out stations. But by this device each one is fully informed some time in advance of the arrival, and when the desired station is reached can have on overcoats or wraps, parcels in hand, &c., and be all ready to walk out without confusion.

Figs. 3 and 4 show modifications in the manner of providing eyelets for the printed cards.



Fig. 2.

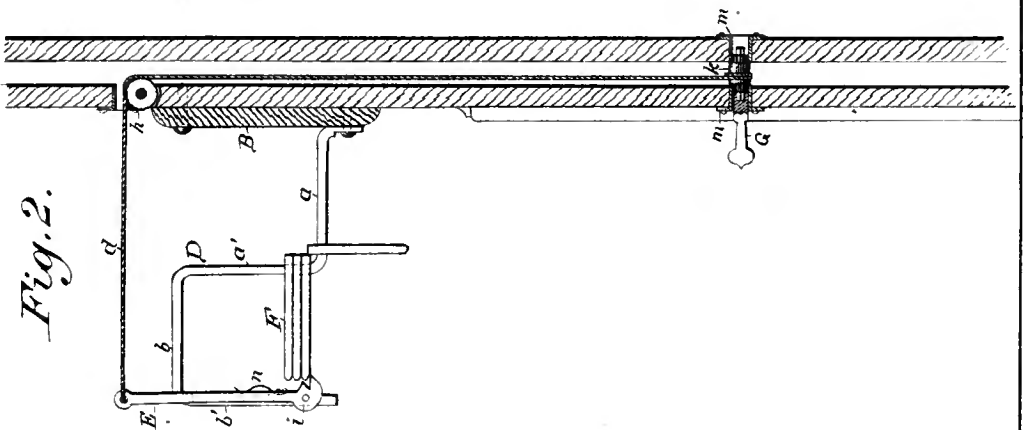


Fig. 1.

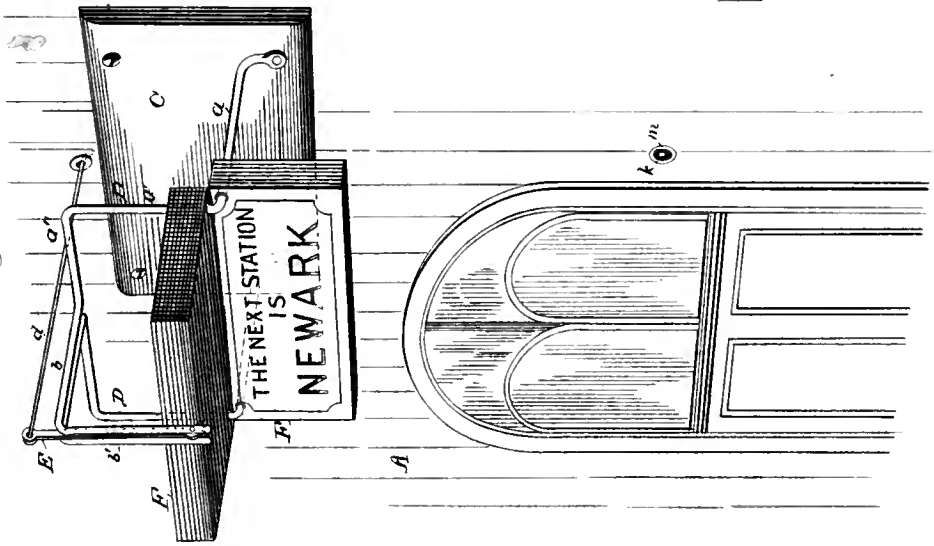


Fig. 3.

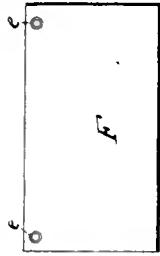


Fig. 4.

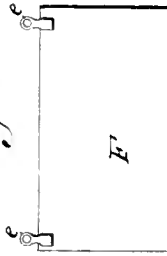


Fig. 5.









Page 89, Fig. 1, is a vertical section of the inner side of a car, showing a device by which all the side windows may be simultaneously closed, whenever desired, either by reason of a sudden storm, when passing through tunnels, during inclement weather or intolerable dusty periods. Very few travelers have escaped that insufferable nuisance known as the "open-window crank," or fail to remember when some otherwise pleasant journey was rendered almost unbearable by the persistency with which the passenger in the seat just ahead kept the window up to its full height.

Instances innumerable can be referred to where vigorous persons, indulging in heavy cloaks, coats, or a superabundance of wraps, have planted themselves down before less fortunate travelers, and, totally oblivious to the weakened physical condition or scanty raiment of the unfortunate immediately in the rear, have willfully kept their own windows wide open, thereby suffering material inconvenience themselves, but sending chilling winds or clouds of dust and smoke directly in the faces of the rear passengers; and the object of this invention is to place the control of so important a matter in the hands of persons other than the vicious or selfish. *Ladies or gentlemen* will, of course, take the trouble to inquire whether or not an open window is objectionable; yet very many persons, with *plenty of clothes*, seemingly forget to mention it.

The dotted lines, Fig. 1, represent longitudinal rods and vertical bars, connected in such a manner that, by simply moving the levers F and I to the right or left, the windows are held either up or down, as may be desired. Thus the train-men can instantly close them all whenever necessary, and if a cranky passenger insists (as is frequently the case) on keeping a window wide open in cold weather, either the train-men or the suffering passengers in the rear seats can close the offending window, without argument or difficulty, either by swinging the long levers at the end of the car or the short levers pending between each window to the right or left, as the case requires.

Figs. 2, 3, and 4 represent the face and edge views of the same device in detail.

This invention in nowise abridges the rights or privileges of any sensible passenger, all being free to open or close their own windows whenever desired (as in the ordinary car;) but the estimable privilege of willfully annoying others, or unnecessarily making a whole train-load of respectable people uncomfortable by keeping windows constantly open, is taken away from the heedless or vicious crank, that is all.



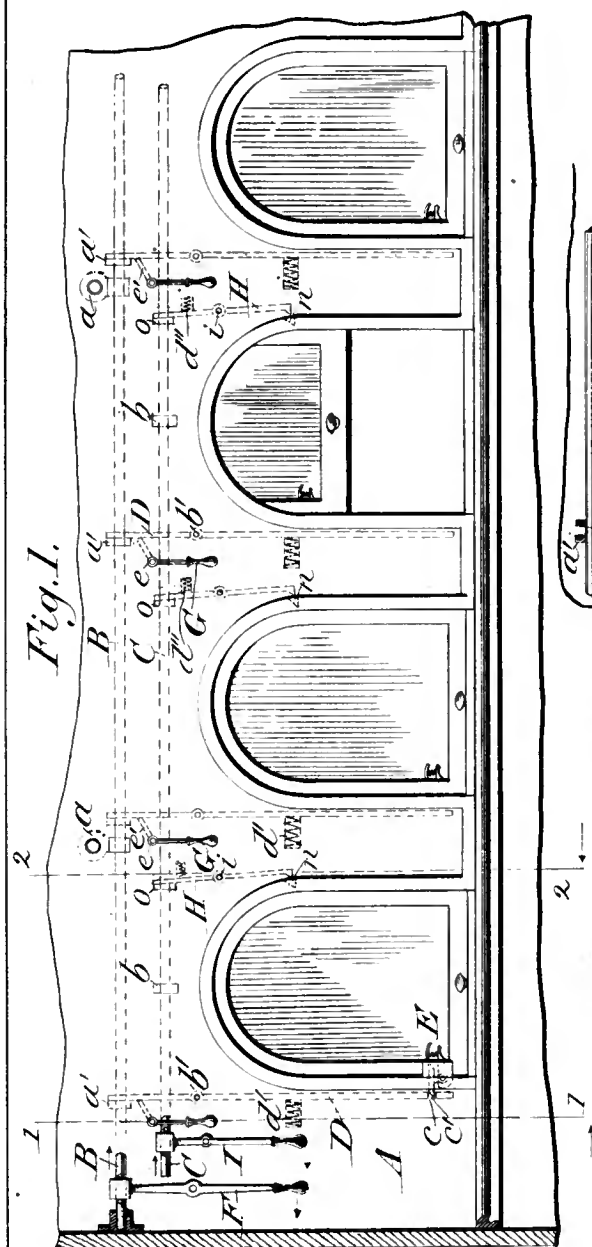


Fig. 1.

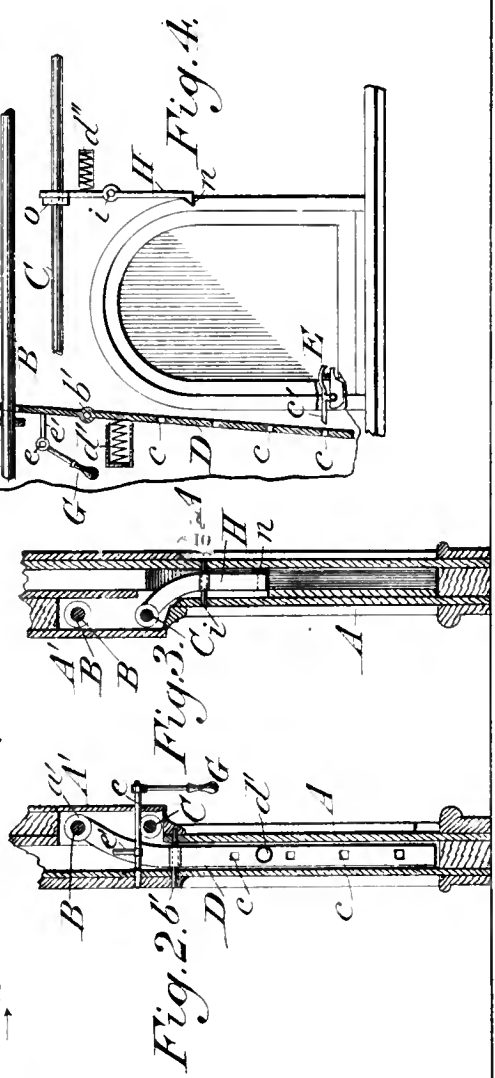


Fig. 2.

Fig. 3.

Fig. 4.









Page 93, Fig. 4, is a transverse vertical section of a car, showing one application of an emergency brake, the metallic shoe being in position beneath the wheels.

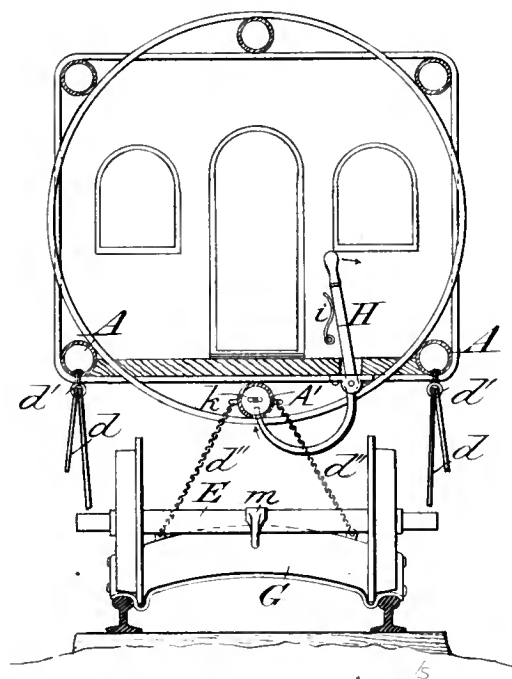
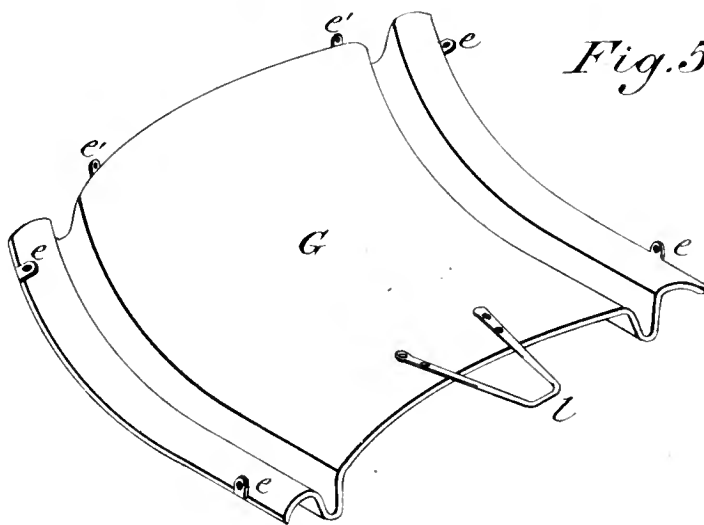
H is a lever, by which the brakeman or any intelligent passenger can instantly release the latch which holds this shoe in its natural state of rest.

This device, as its name implies, is only to be used in cases of emergency, when the ordinary brake refuses to work, or to save the car from plunging down an embankment or through an open draw. In such cases it is simply and easily operated, and effective.

Fig. 5 is a perspective view of this metallic shoe detached from the car.

As an instance illustrating the utility of the device shown on the opposite page, it is safe to say that had this brake been attached to the train which recently ran away with such disastrous effect on the Washington Y, even though all other appliances failed, the passengers themselves could have easily and effectively prevented that frightful calamity.



*Fig. 4.**Fig. 5.*







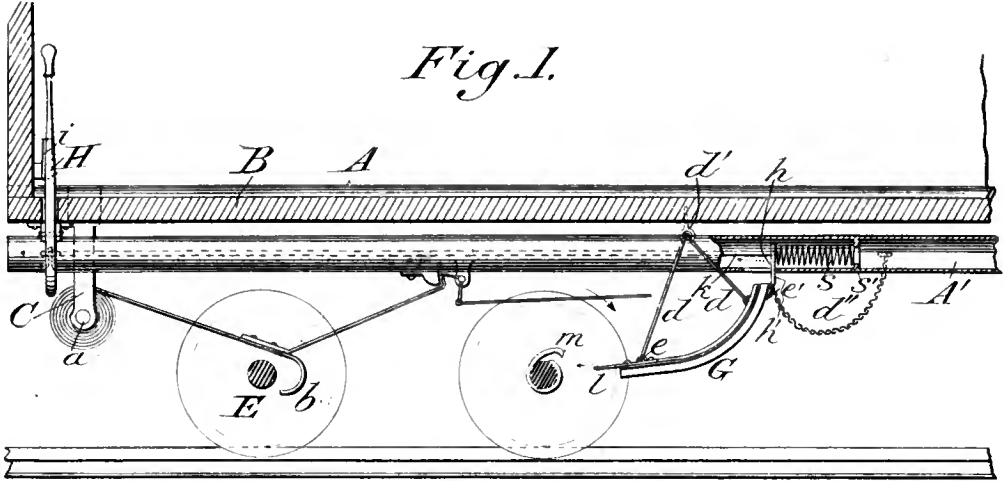
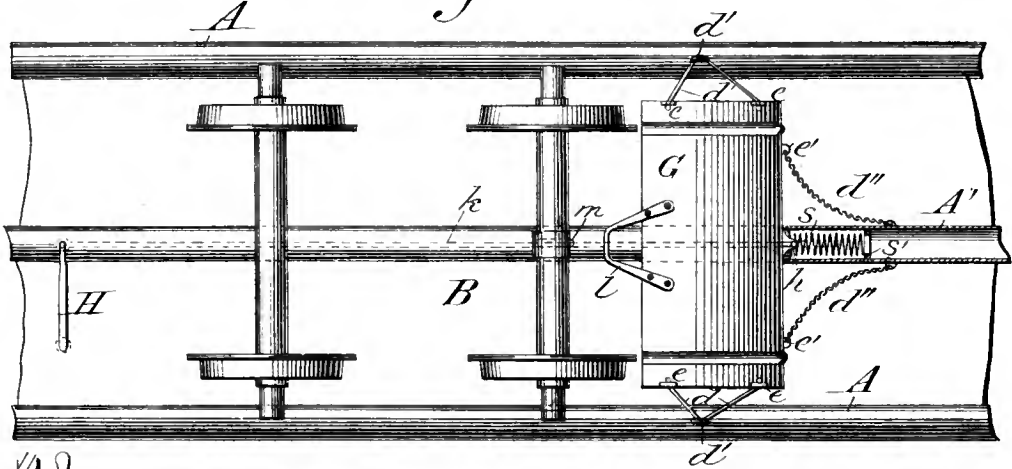
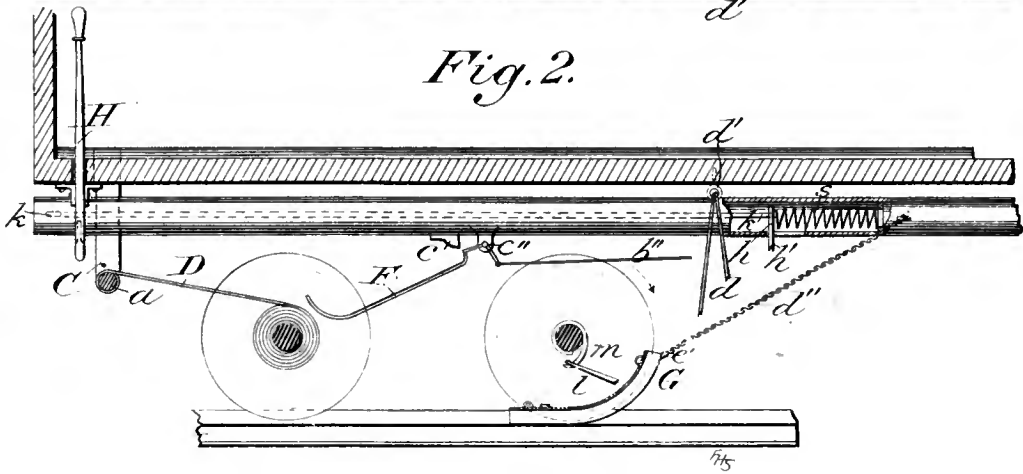
Page 97, Fig. 1, shows a side elevation of the wheels, the bottom of the truck and the emergency brake or metallic shoe previously referred to, in a state of rest.

Also a modification or metallic band, which, when released from its fastenings, instantly winds around the axle of the truck, making further rotation impossible, and thus almost instantly stopping the car. This modification can be applied even if one of the rear cars should jump the track, as sometimes occurs, in which event it would at once snap the coupling, and, being thus released from the train, could not be dragged or pulled by the ties.

Fig. 2 shows both devices practically applied.

Fig. 3 is a bottom plan view, showing relative position of both wheels and shoes when at rest.



*Fig. 1.**Fig. 3.**Fig. 2.*









Page 101, Fig. 6, shows the metallic band in its normal position or state of rest, and to the right shows it as applied to the axle of the truck.

Fig. 7 is a bottom plan view, and Fig. 8 a transverse vertical section, showing the relative positions of the car, the wheels, and the metallic band.

It is the purpose of the company controlling the various improvements embraced in this series of patents to place plainly printed instructions for operating each in convenient positions, contiguous to such improvement, to the end that the traveling public may readily familiarize itself with the objects and action of them all.



Fig. 6.

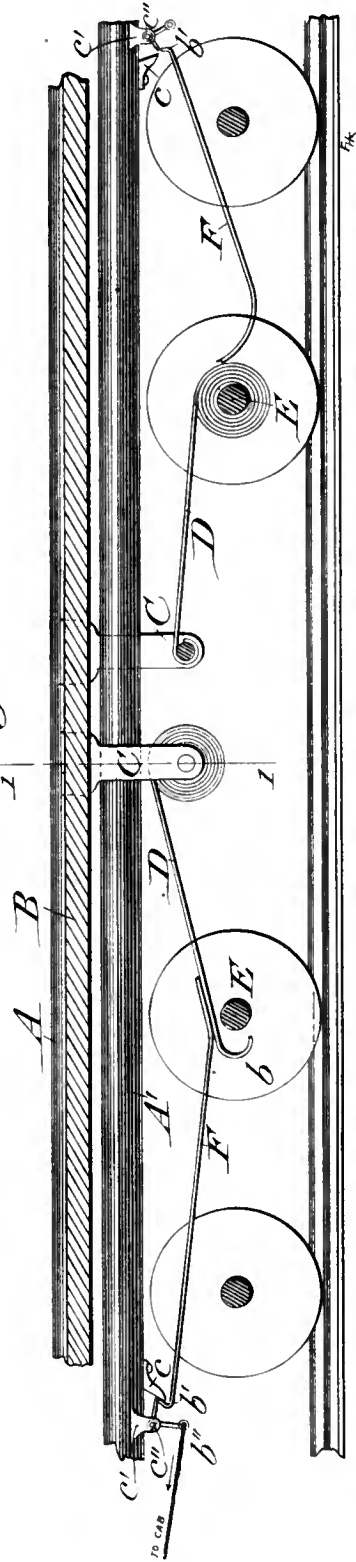


Fig. 8.

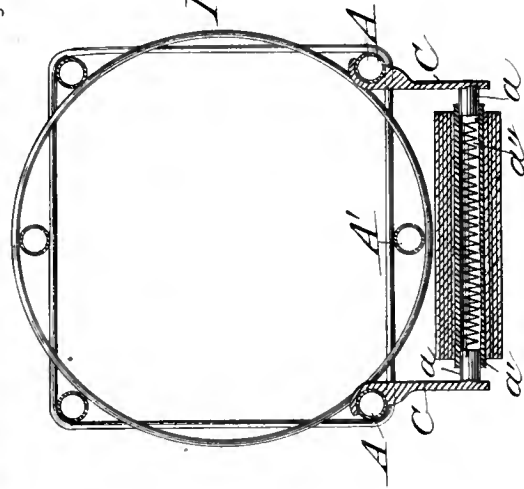
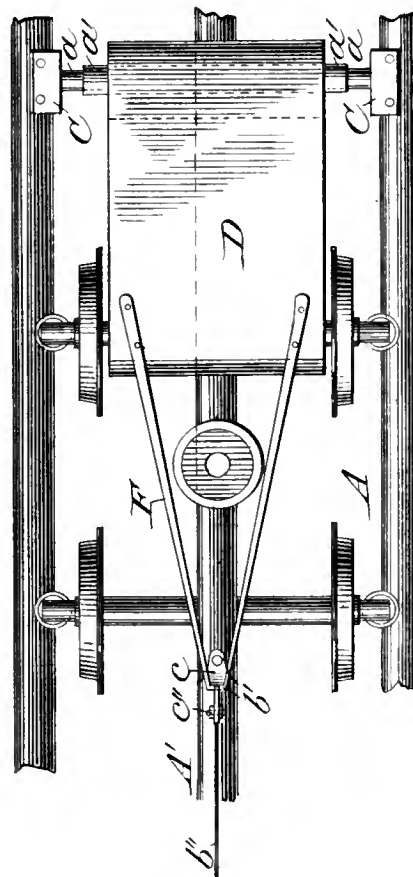


Fig. 7.







### *Independent Heaters.*

The numerous railroad accidents during the past year, particularly those resulting in the roasting of passengers by the ordinary car-stove, has called the attention of inventors to the necessity of heating passenger-coaches by some means outside of the local fire-trap. Steam from the engine can be used in certain instances, though its tendency to rapid condensation renders it almost impracticable where cars are frequently detached from or added to the main train, as is necessary when passing branch or connecting roads. It is also seriously objectionable from the liability to burst the pipes or tubes, or to scald train-men or others when attaching or detaching the various cars. Still another serious objection to heating cars by steam from the engine is the rapid exhaustion of the motive power, and it is a matter of serious doubt whether locomotives can furnish steam enough to draw and comfortably heat whole trains on their numerous long journeys over the Northern roads. But a system infinitely better than this has been devised for thoroughly accomplishing the desired purpose without any of the serious objections above referred to, and without crippling or interfering in any way with the locomotive power. The tender is simply elongated sufficiently to put a furnace in the rear of the coal-box, as seen in Fig. 2, page 109, and under easy management of the locomotive-fireman. This furnace is provided with suitable blowers, and hot air is generated and forced through the entire train by means of suitably-connecting pipes, from which the heat can be withdrawn by the passengers themselves, through local registers at convenient distances along the car, whenever and wherever required, (without the possibility of an accident from the bursting of tubes or radiators,) the manner of coupling and uncoupling being so simple that the most brainless train-man cannot make a mistake. The coupling-valves, being automatic in their action, successfully open and close themselves as the various cars are united or disunited in making up or detaching trains. Another advantage of this system grows out of the fact that this furnace is surrounded by a water-jacket, which not only prevents a caloric waste, but heats the water supply which is furnished to the locomotive almost at the boiling point, and, as is obvious, saves the withdrawing of heat from the locomotive to keep the water supply from freezing, as is now necessary in cold weather. Thus it will be seen that instead of crippling the engine's power by withdrawing any portion of its force, as is necessary in steam-heating processes, our system actually *assists* the locomotive in generating steam, by furnishing hot instead of cold water to its boiler. In the summer season a division plate can be put in the water-jacket between the elongated portion or furnace and the tender proper, and that portion immediately surrounding the furnace can be filled with blocks of ice, and cold air driven through the pipes by the same blowers which furnish the heated air in winter; and during excessively hot weather flexible or other connections can be made with ice-chests in each car, the air being driven through as already described, and the temperature of each apartment kept down to the desired point; thus, during both winter and summer, traveling will become a luxury instead of a hazardous and annoying risk; freed from all danger by accidents of any character; reclining on luxurious seats or sofas, with the temperature of the car always at the desired point; dust and cinders effectually debarred by the devices previously described; all the unevenness of roads overcome by our independently-acting truck spring, smoothly and almost noiselessly, with mind free from all danger, care, and anxiety, the traveler is safely whirled over the country in almost oriental luxury, and traveling indeed becomes a pleasure.

Fig. 1, on the opposite page, represents a section of a moving train, heated or cooled, as may be desired, by the improved device for supplying hot or cold air.









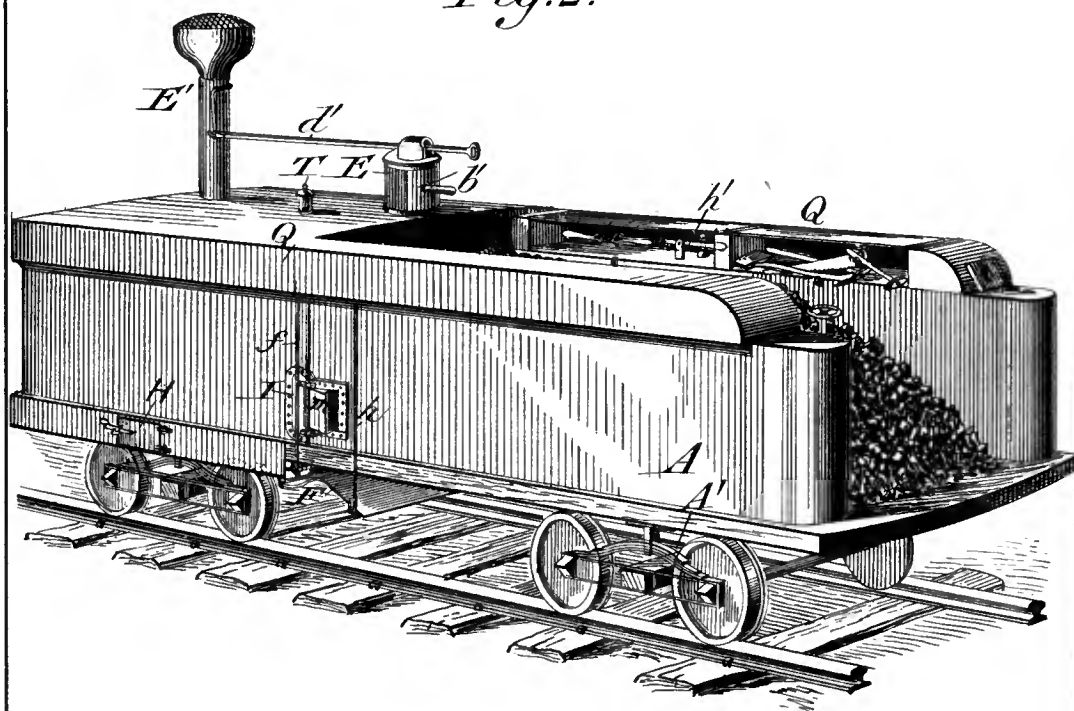


Page 109, Fig. 2, is a perspective view of my improved heater, showing the side door, for supplying the blower with air, slightly ajar. This door is opened and closed at will, and the dampers opened and closed by the levers coming up into the apartment just above the coal-pit. This little apartment, when not in use, is closed to dust or dirt, snow or rain, by a door depending from the top of the box. The lower door H is the outlet for ashes or cinders. The sliding-door *b'*, in the little rotunda, is for filling the coal magazine. The bar *d'* is for opening and closing the valve in the smoke-stack *E'*. The continuation of the chamber, separated by a strong partition from the one containing the operating levers, is used for a tool-box, the door Q being opened and closed the same as in the lever section. A thermometer, thoroughly and securely encased, by which the state of the atmosphere is determined, is seen at T. The coal for the locomotive is furnished from the tender in the usual manner.

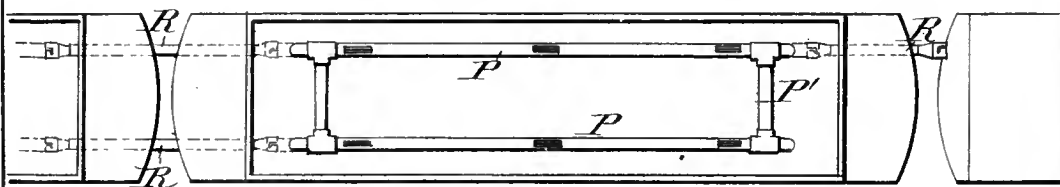
Fig. 3 is a plan view of the bottom of a car, showing the arrangement and connections of hot-air pipes, and the registers opening up through the floor, through which the heated air is withdrawn when desired. It is apparent, of course, that these registers may be increased, if necessary, to any requisite number.



*Fig.2.*



*Fig.3.*





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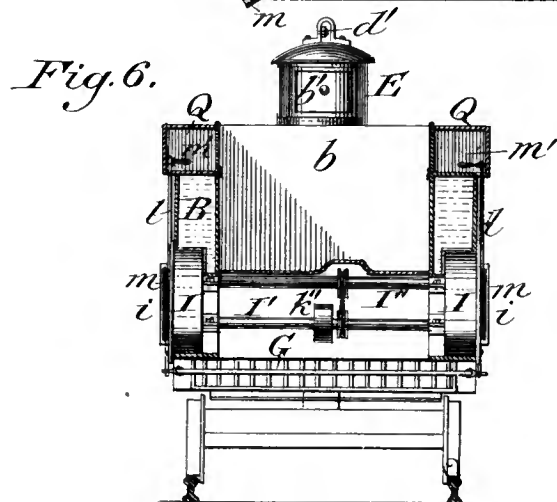
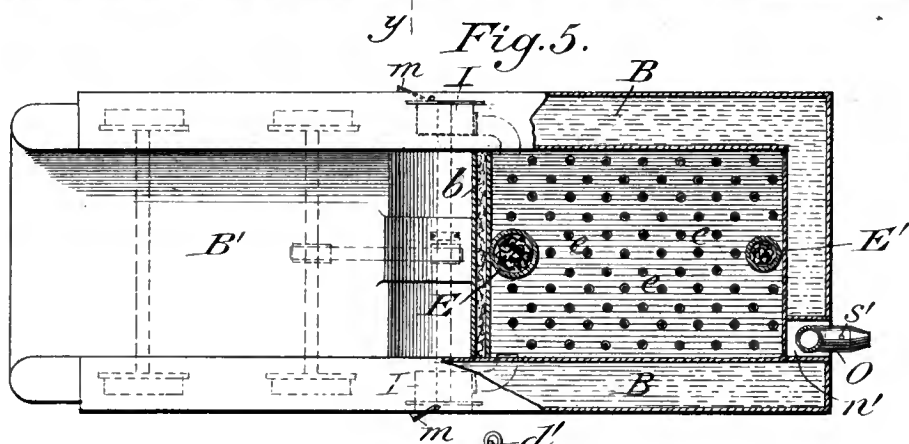
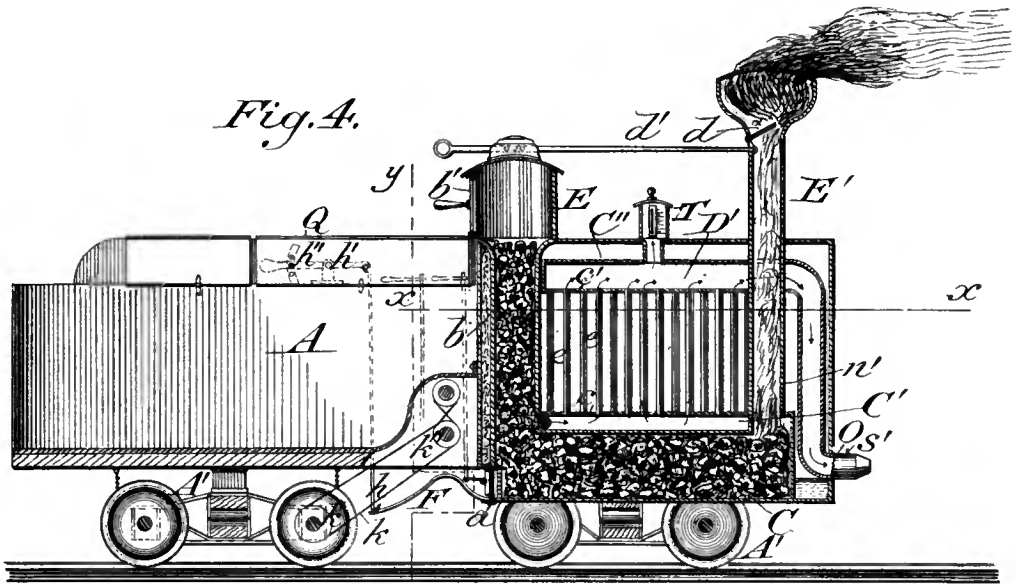


Page 113, Fig. 4, is a longitudinal side elevation through the centre of the furnace, showing the coal magazine; the combustion chamber below; the hot-air pipes; the heated air chamber, both above and below the pipes; the smoke-stack, and its damper or valve; the escape-pipe, through which the heated air is forced; the blower; the operating levers in the chamber above the coal-pit; the thermometer, for registering the state of the atmosphere, and the swinging-apron, which is used for cooling the ashes or cinders as they escape from the lower damper.

Fig. 5 is a plan view of the same, plainly showing the furnace surrounded by the water-jacket.

Fig. 6 is a transverse vertical section on a line with the blowers, showing the casement in which the blowers are worked and their connection with the shaft of the tender-truck; also, the lower grate, through which the necessary air is received to support combustion.







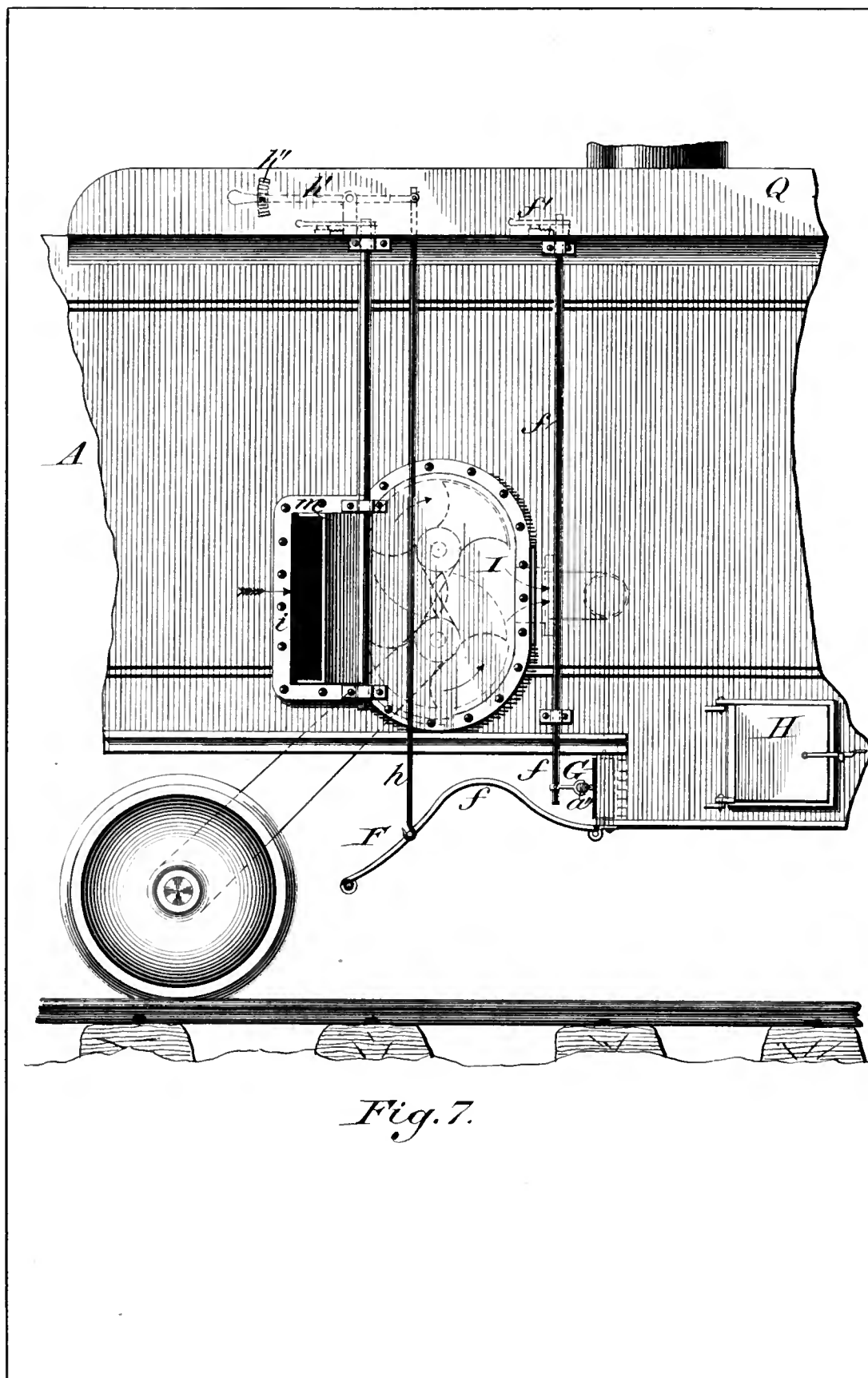


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Page 117, Fig. 7, is an enlarged view of a section of this device, showing the open door for the ingress of cold air and the operation of the blowers; the rods connecting the damper; the movable apron and the door, with their respective levers, shown in dotted lines in the little chamber above the coal-pit. The door H, as already stated, is for removing the ashes and cinders from the combustion chamber.











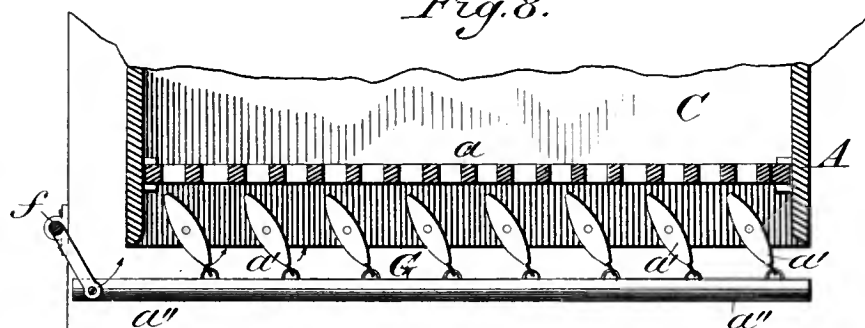
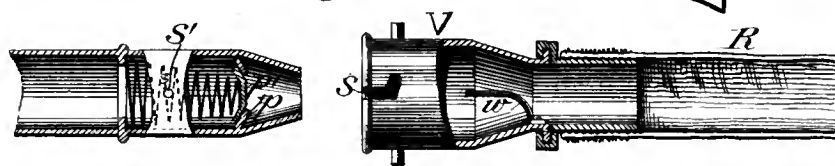
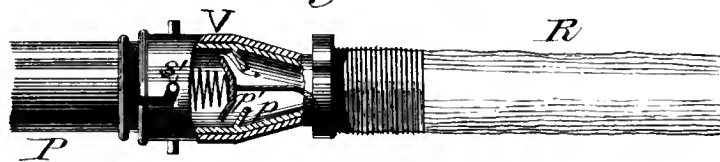
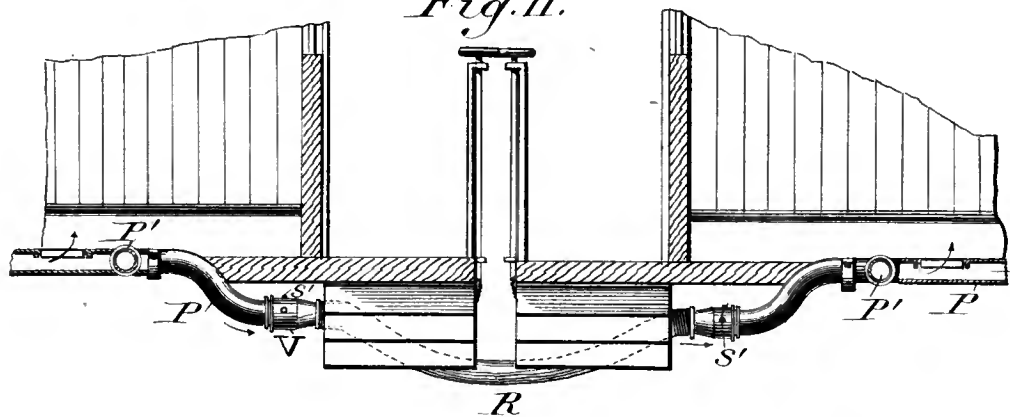
On page 121, Fig. 8, is seen the heavy grate A, which retains the coal in the combustion chamber C, and the damper  $a^1$ , operated by the rod  $a^2$ .

Fig. 9 is a view of the coupling for the hot-air pipes, separated, and the valve P, closed by the coiled spring S'.

Fig. 10 shows this coupling united, the interior rod W pushing back and opening the valve as the coupling-sleeve is advanced to its proper position.

Fig. 11 is a section of two cars, showing the flexible tube R' connecting the hot-air pipes.



*Fig. 8.**Fig. 9.**Fig. 10.**Fig. 11.*







*Fortress Cars.*

The object of this invention is to provide a car strong enough to withstand all concussions from collisions, derailment, or any other accident, and, also, to cover the car with such material as to resist the action of fire, shots from either rifles or revolvers in the hands of train-robbers or other desperadoes.

The immediate object is to provide a car for the safe transportation of valuable express matter, bullion from the mines, coin from the different cities or mints, paymasters' supplies for the army, railroad or contractors' men, &c.

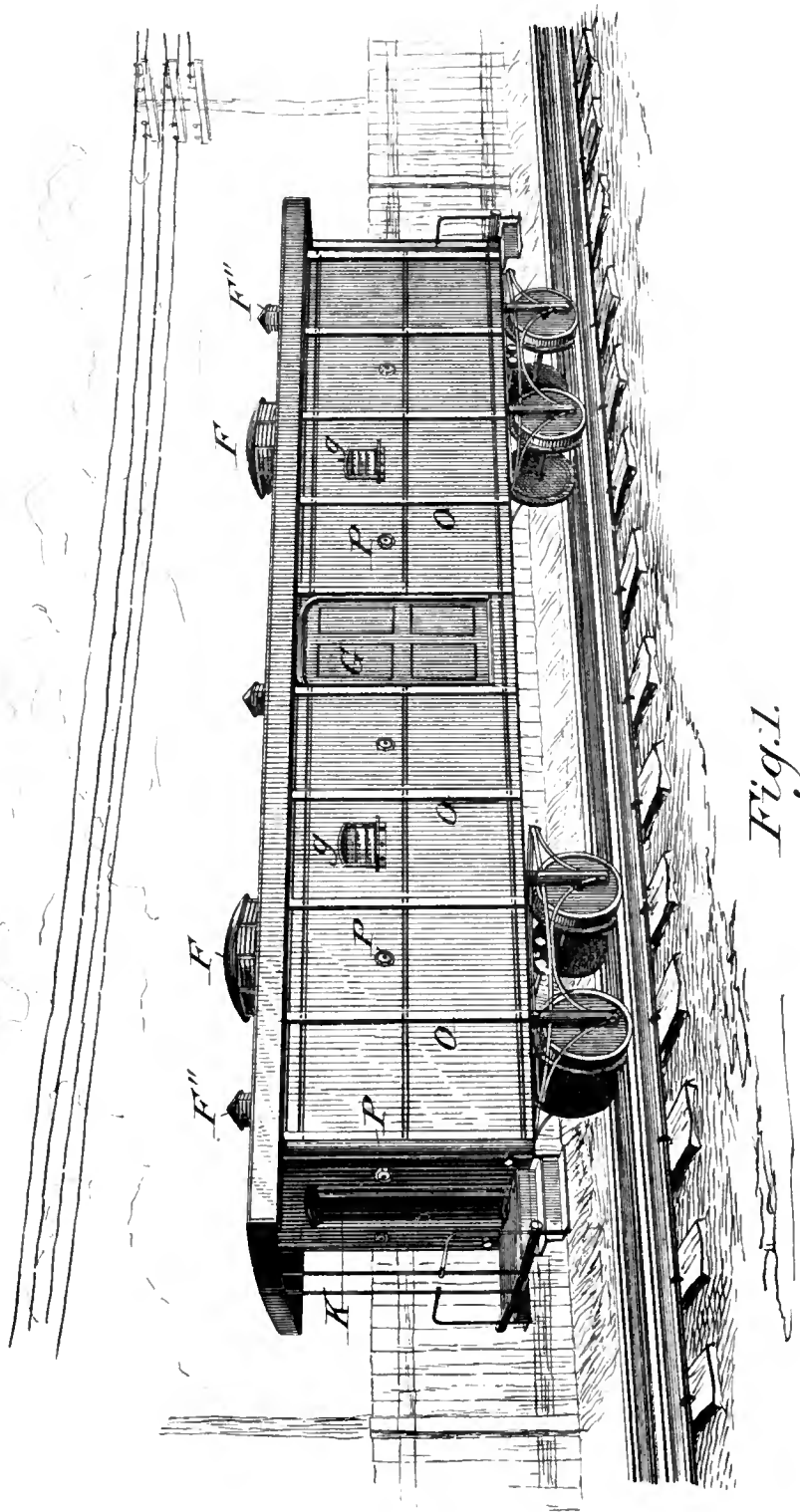
As this car possesses all the elements of a fortress on wheels, it will be peculiarly valuable while running over sections of the country sparsely settled and exposed to the lawless gangs who infest such regions, as it will materially lessen the force of armed men necessary to protect such valuable trains. A few well-armed men within these moving fortresses, protected, as they are, by an impervious casement of steel, pierced with automatically-closing port-holes, from which they can get the range of any man or object outside the car, without in the least exposing their persons, will be more than a match for fully ten times the number of the outside or attacking party. The entrance to these cars is by a rotating cylindrical door, which in no case will admit of the passage of but one person at a time; therefore, if it is desired to capture the leader or any member of the gang, such person can be readily admitted, (the rotating-door excluding all others,) and effectually bound and carried off in triumph. The automatically-closing port-holes, as seen by the drawings, are tubular inside, provided at the outer end with a ball-and-socket journal, which holds it within the casement or sides of the car, and admits of its being turned in any direction, either for observation or for firing upon the outside enemy, and instantly thereafter the inside end may be dropped, which will bring the outside aperture within the socket which attaches it to the casement, thus effectually excluding all bullets fired by the attacking party. Suitable turrets are extended above the roof of the car to admit of light and air. These turrets may be easily and instantly closed, in case of any attack from the outside, as they are provided with either heavy steel-slatted blinds or a rotating, steel, cylindrical shaft. The roof is also supplied with suitable ventilators, for the escape of the hot air from lamps or foul air. This car is also provided with an indestructible furnace, for heating in winter, which is made sufficiently strong to resist all concussions, of whatever nature, and is fastened firmly in position, and made additionally strong by being surrounded by a heavy steel cage, which effectually prevents the throwing of either packages or persons against its heated surface in case of accident. Artificial light is provided by gas, compressed within indestructible cylinders, also firmly secured in position in one corner of the car, from which cylinders it can be withdrawn at will by the occupants of the car. When used as a paymaster's car, suitable side windows are provided, through which to pass out checks or money. These windows are covered by heavy steel blinds, which can be instantly and securely closed from the inside in case of any sudden attack, these blinds being sufficiently strong to resist the impact of any bullet.

It is apparent that these cars can be constructed in the ordinary form of common cars now in general use without departing from the principle of my invention; still I prefer to build them on the indestructible principle shown in my patents of July 5th, 1887.

The following description in detail will give a fuller idea of the great advantages of this traveling fortress:

Page 125, Fig. 1, is a perspective view of my improved fortress car, showing the turrets and ventilators above the roof; the automatically-closing port-holes in the sides and end; the rotating cylindrical door in the end; the side door, for the receipt and discharge of freight and express matter, and the heavily-grated side windows, which are only operated when the structure is used as a paymaster's car.

It will be readily observed that though this car is strong enough to resist any and all attacks from thieves or other marauding parties, or guerrillas in war times, and strong enough, also, to resist all the crushing effects of railway accidents, from whatever cause, it is in no sense cumbersome, but as light and graceful in appearance as the most modern parlor coach. Its operation has already been fully described on the previous page.

*Fig. 1.*



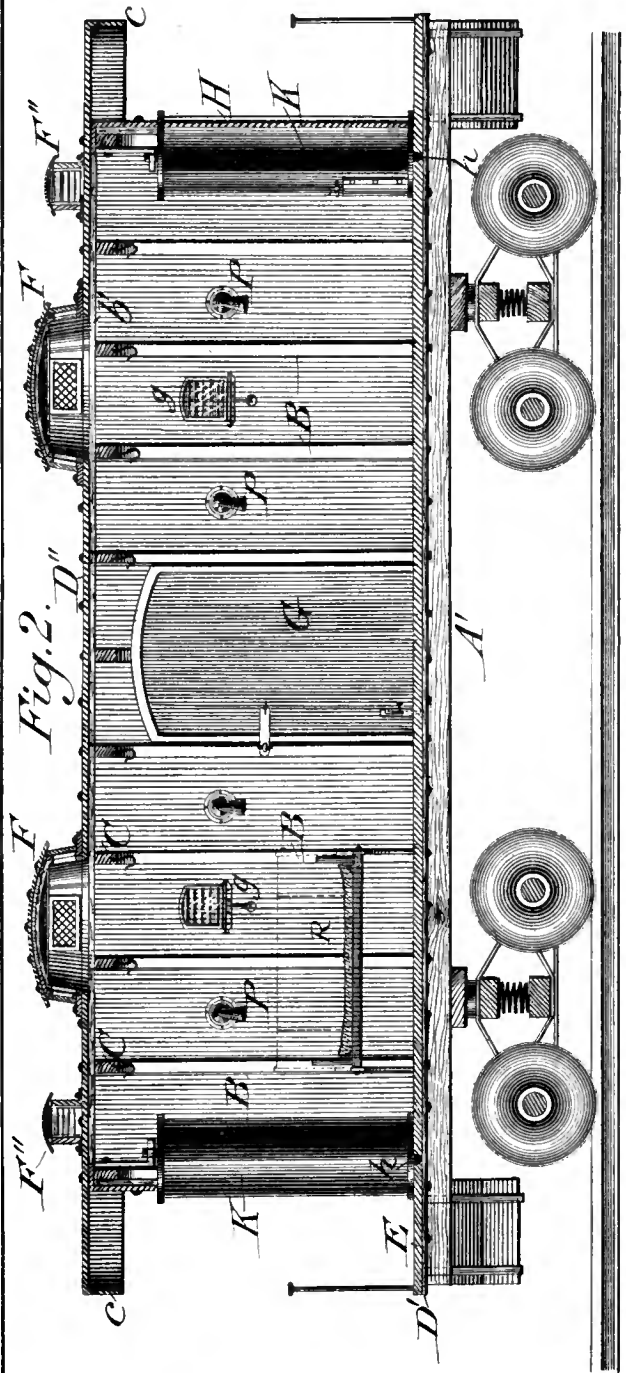




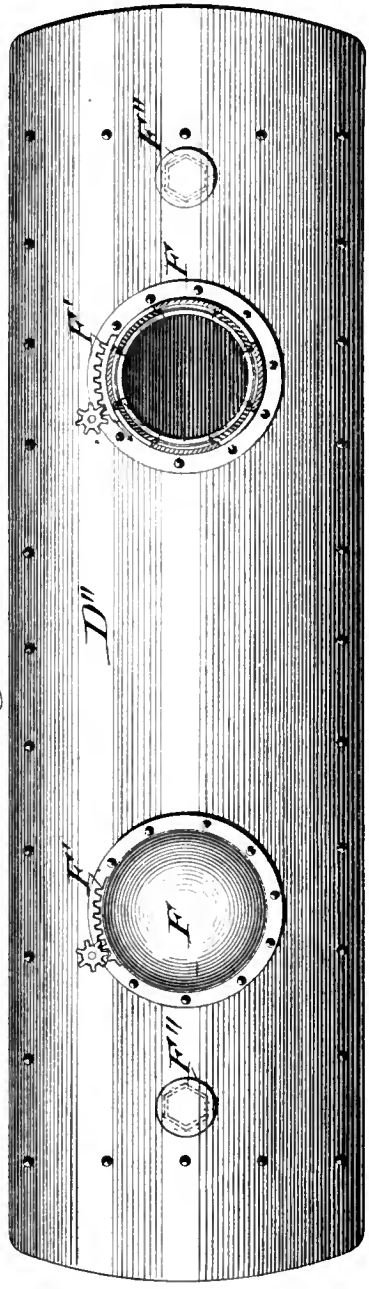
On page 129, Fig. 2 is an interior side elevation of the fortress car, showing the automatic ports in their normal or closed condition. It also shows the cylindrical door at the ends, one opened on the interior of the car, where it is firmly held by a heavy bolt, dropping into its proper socket in the floor, where it remains until the occupant of the car desires to go out, in which case he steps into the cylinder, raises the bolt, and rotates the cylinder until the opening registers with the corresponding aperture in the end of the car. On re-entering the car he simply reverses the process: rotates the cylinder to the right until it resumes the position shown in the right-hand end of Fig. 2, when the bolt again drops into its socket, and the agent can step out of the cylinder to the interior of the car. It is apparent that while in this position the outside aperture is effectually closed by a portion of the convex surface of the cylinder, effectually excluding any intrusion, except by permission of the inside occupant, and as these cylinders are only large enough to accommodate one person, it will, of course, be apparent that but one can enter at a time; therefore, any attempt at raiding the car by a whole gang at a time is effectually prevented; for, as they can only come in singly, they can be either disabled, captured, or bound in detail. As the automatic ports are held in position by a socket corresponding to its globular end, it is apparent that they can be turned readily in any direction when it is desired to observe the movements or fire upon the enemy, and when released immediately fall into the pendant position shown in the drawing, effectually closing the aperture, to the exclusion of bullets or other missiles from the exterior. Thus the agents, train-men, or guards maintain a perfect mastery of the situation, without in the least exposing their own persons to danger. The operating devices for opening and closing the turrets are simple, and can be easily managed by the most ignorant train-man.

Fig. 3 is a plan view of the top of the car, showing the ventilators, the turrets, and the ratchet and the gear-wheel for moving the cylindrical steel casement, which closes and opens the window, when rotated to the right or left by the pinion, which is operated from the interior by a crank or wheel at the lower end of the pending shaft, which shaft is journaled in a suitable bracket, attached to either the roof or the frame of the car. The roof and floor may be provided with movable ports, similar to those in the sides and ends of the car, which can be used against an attacking party with advantage in case the car is derailed and thrown on its side.





*Fig. 3.*











Page 133, Fig. 4, is a plan view of the fortress car, showing the safes for valuable jewelry or money in one end and an indestructible furnace and a cylinder for compressed gas in the other end; the rotating cylindrical doors, one with the opening turned to the interior of the car, the other opening registering with the corresponding aperture in the end leading out to the platform.

Fig. 5 is an enlarged view of the cylindrical door. The flange on the left, as one stands within the cylinder, is in radial line with the centre, and fits into the casing at the end of the car, and is provided with a suitable lock to retain it in that position when desired. An enlarged view of this flange and lock is shown in Fig. 7. In Fig. 6 the cylindrical door is rotated to the right, so that the opening from it is within the car, the radial flange now bearing against the opposite side of the doorway leading in from the platform, the point of greatest curvature of the cylinder just filling the allotted space, so as to effectually close the outer opening. The bolt on the outside of the interior portion of the cylinder, dropping into its proper socket in the floor, securely holds it in its position.



Fig. 4.

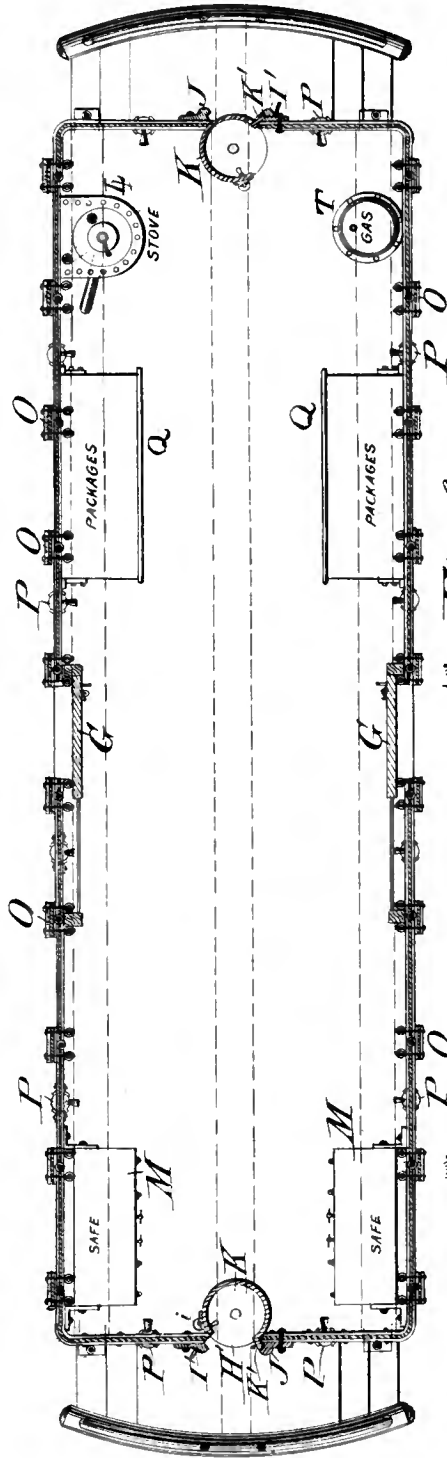


Fig. 6.

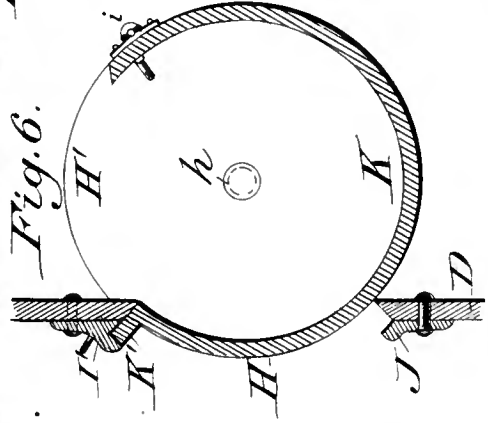


Fig. 7.

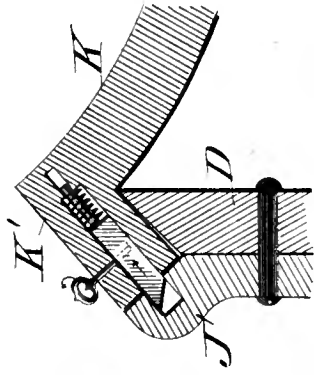
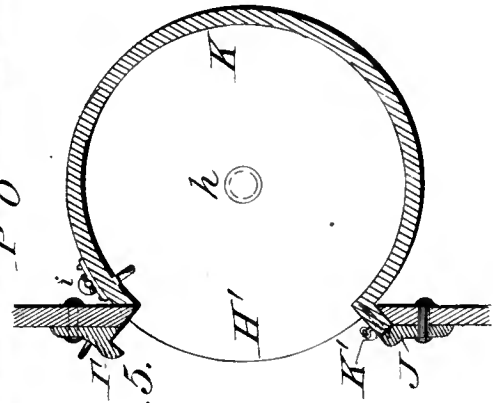


Fig. 5.



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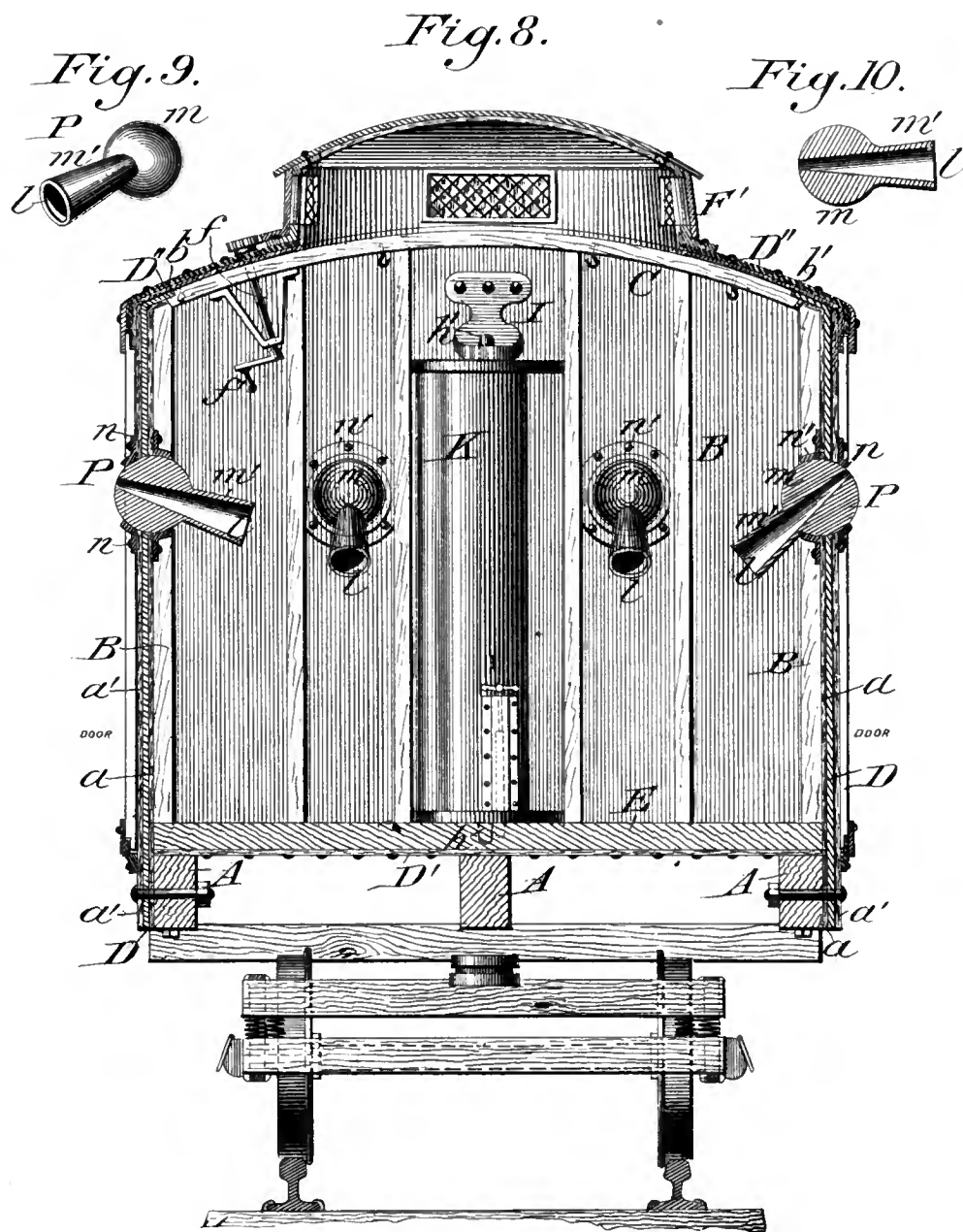


Page 137, Fig. 8, is a transverse view of the interior of an ordinary fortress car, showing the cylindrical door with its opening to the interior and the bolt dropped into its proper position; also transverse sections of the automatic ports, disclosing the funnel-shaped aperture through them; the crank for rotating the cylindrical casement is seen at the left, depending from the roof to a point within easy reach of the occupant of the car.

Fig. 9 is a perspective view of one of the ports detached from its socket, and Fig 10 is a longitudinal section of the same.

From these views it will be seen that the ports, the flanges, and casement form a ball-and-socket joint, from which convenient range can be had of all outside enemies or objects, which can be fired upon by the agent from the interior of the car without in anywise endangering his own person. Thus, in perfect safety, he can easily defend himself and the company's property.









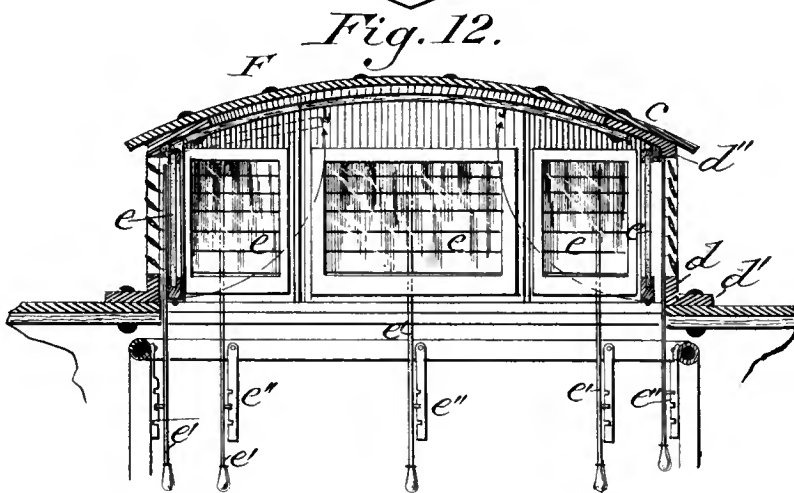
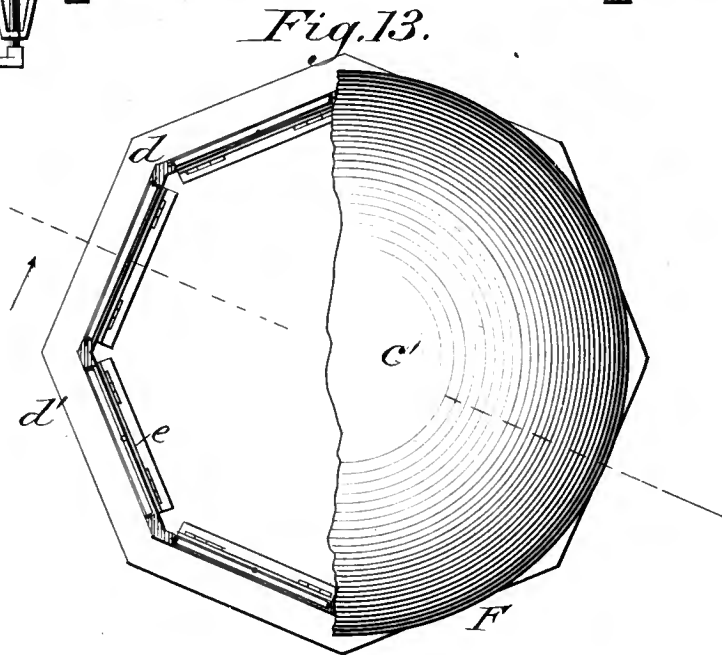
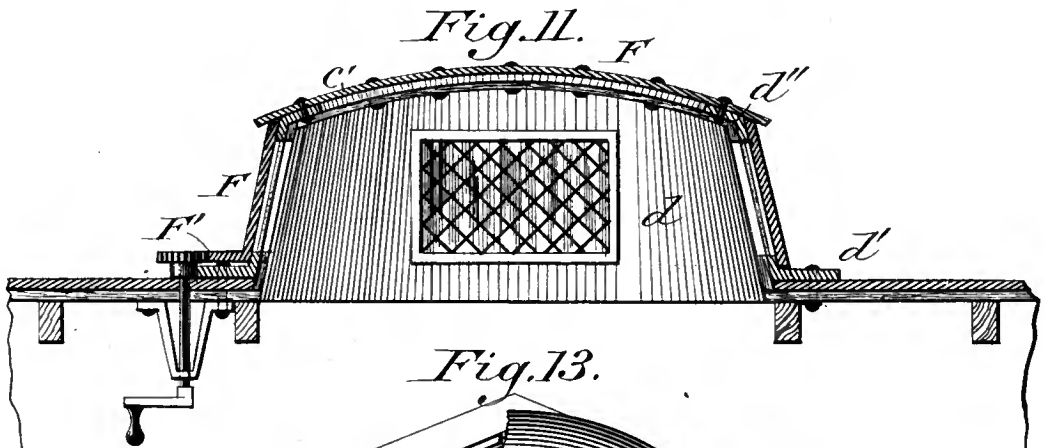
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On page 141, Fig. 11 is an enlarged sectional view of the turret, showing the edge of the outer cylindrical casing; the pinion, the shaft, and the crank for rotating the same when it is desired to open or close the windows of said turret; also an interior view of the heavily-grated window. The walls of this turret, as will be seen by the drawing, are slightly conical, designedly so, for the better admission of light, and by this construction the turret is a complete circle, while in Fig. 12 the walls are upright and in form polygonal, the windows being guarded by slatted blinds, which may be opened or closed at will by the handles depending from said slats. It will also be observed that these slats can be turned at any desired point, the notches in the bars depending from the car-roof holding these rods and the slatted blinds attached thereto in any desired position. These blinds are of sufficient thickness and strength to resist the impact of any bullet, and, of course, thoroughly protect the occupant of the car when closed. The windows may, whenever desired, be swung upwardly, and held in that position by a hook or catch depending from the dome of the turret.

Fig. 13 shows a top plan view of an octagonal turret, with the circular dome partially broken away.









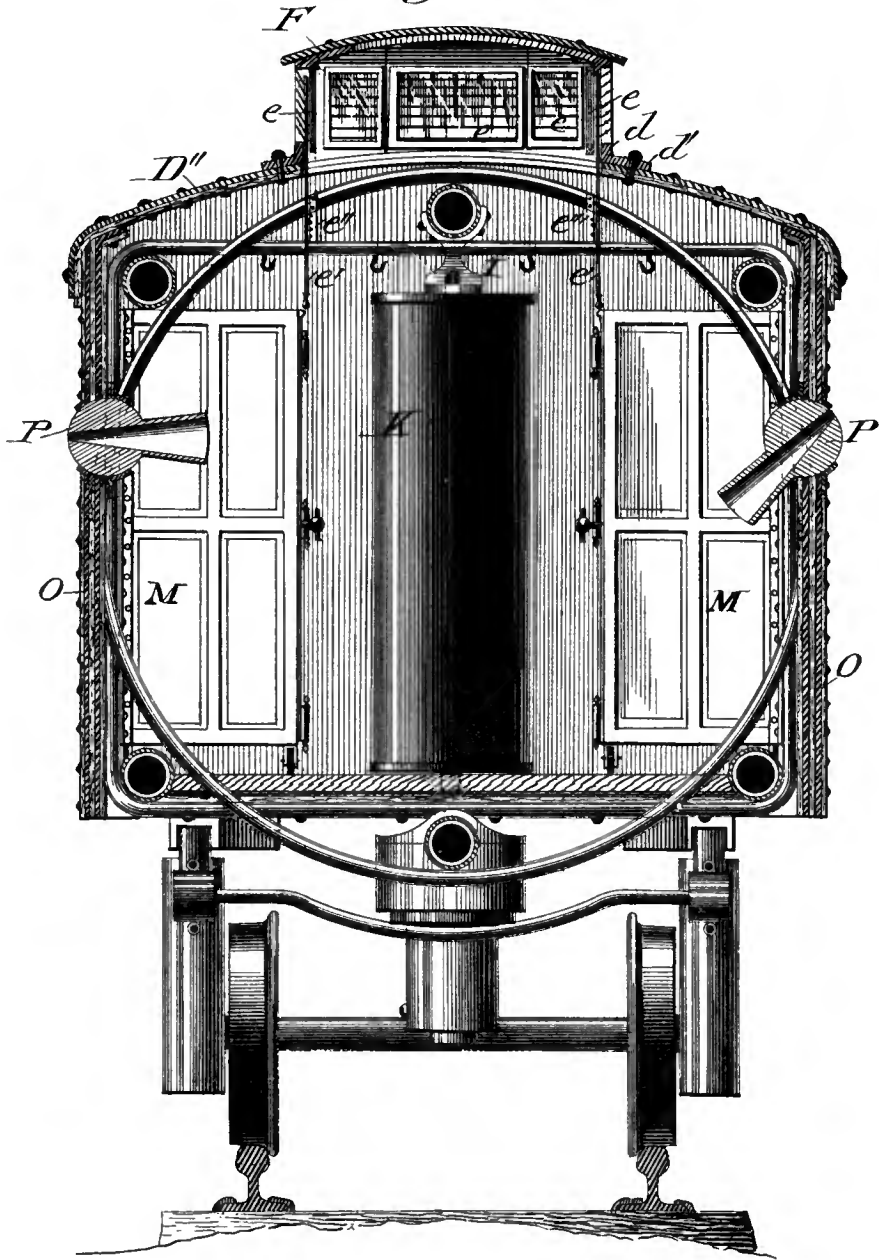


Page 145, Fig. 14, is a transverse vertical section of a fortress car, on a line with the centre of one of the turrets, constructed with the steel tubular framework of my indestructible car patented July 5th, 1887, and with the united strength of this rigid framework and the steel casement of the car firmly riveted together, as shown in the drawings, it becomes, unquestionably, the strongest structure on wheels ever before devised. The united strength of these materials are so judiciously displayed as to make a car absolutely indestructible either by collision, by fire, by attacks from any source, or by any possible wreckage; hence, the lives and property entrusted to its protection will in all cases be saved.

In this view we see the cylindrical door closed to the interior, the aperture, of course, registering with the doorway in the end of the car; the pintal, forming the upper bearing of this cylinder, is plainly seen protruding through the bracket support, which is firmly riveted to the upper framework; the lower and corresponding bearing is in a socket securely riveted to the floor directly beneath. As will be seen, also, heavily-mounted safes are firmly secured, by bolts or rivets, to the sides of the car, forming, substantially, an integral part thereof. A sectional view of two of the automatic ports is also seen—one in a horizontal, the other in a partially depending position. The features, the immense strength, and great advantage of my improved truck, and the powerful king-bolt and flange-bearing surfaces previously described, are here partially reproduced. Hooks, depending from the roof or framework of the car, are designed to support light packages, that might be crushed by being thrown into a promiscuous pile of freight or express matter. This also utilizes an otherwise vacant space.

The turret on this car is of polygonal design, and slatted blinds are used to guard the windows instead of the cylindrical casement heretofore described.



*Fig. 14.*









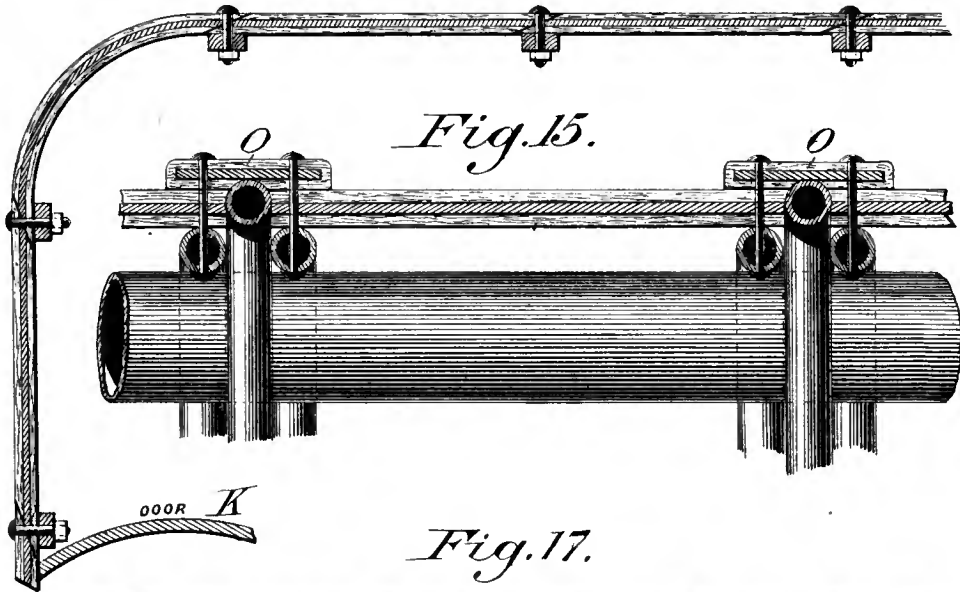
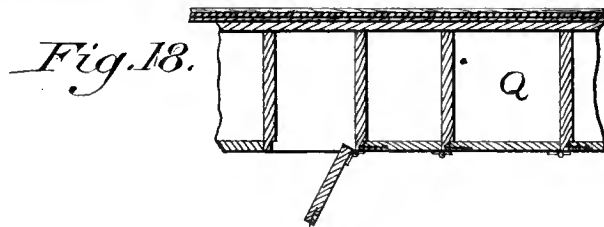
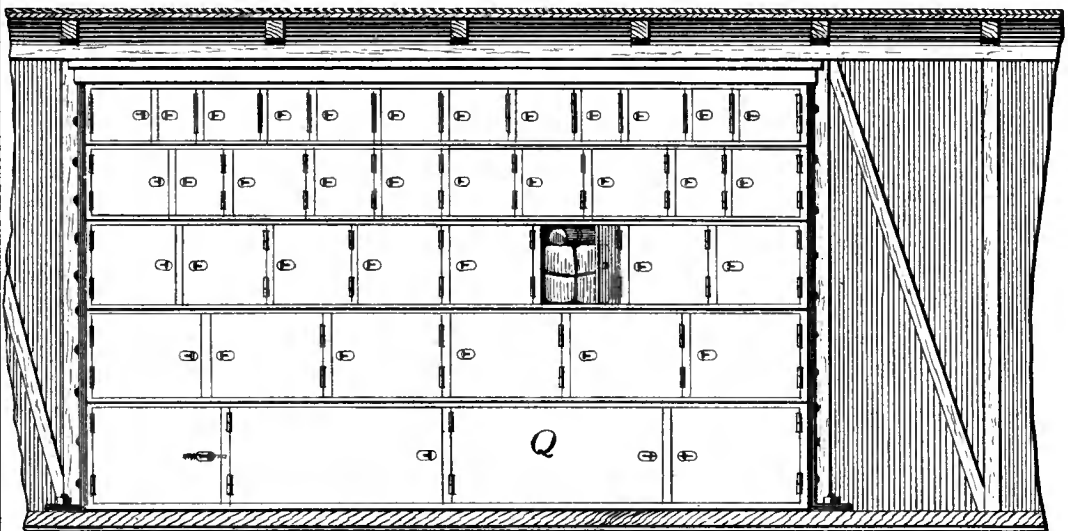
Page 149, Fig. 15, is a plan view, showing the manner of attaching the steel casement to the tubular framework of my indestructible car. The triple sheet of asbestos and steel fills the entire space between the transverse rectangular bands. The bolts, as will be plainly seen by the drawing, also pass through the batting of the same material, which overlaps both sides of the main panels, thus giving great additional strength to the rigid tubular framework.

Fig. 16 shows the manner of attaching this triple casement of asbestos and hardened steel to the upright framework of an ordinary car, the edges of each panel being beveled, so as to smoothly overlap each other, the bolts passing through both the panels and framework.

Fig. 17 shows the front view of a series of pigeon-holes, or various-sized compartments, for the better protection of frail packages. For instance, it is desired to send a clock, a valuable model, picture, or any other parcel, easily crushed or broken if put in the usual promiscuous pile of freight—it can be placed in one of these compartments instead, and transported with safety to any distance. A card, tacked to the outer side of the door, plainly shows to the agent where the package is to be left, and, when arriving at the proper station, can be found and delivered without difficulty. As seen by the drawing, one of the compartment doors is swung open, plainly disclosing the packages within. These compartments are held rigidly together by the longitudinal boards which form the top and bottom of each, the whole case being held rigidly to the side of the car by suitable angle irons. If desired, tumbler-locks may be added to these compartment doors, the keys to which locks are held and only used by the local agents, so that parcels put within cannot be stolen or interfered with in transit.

Fig. 18 is a plan view of a section of these compartments, one door being swung open.



*Fig.16.**Fig.17.*





Page 153, Fig. 1, is a side elevation of the interior of a printing car, showing editorial desk B, type-setting desks and racks C, paper roll J, printing-press D, folding table E, and receiver F.

In this remarkable age *nothing* seems impossible.

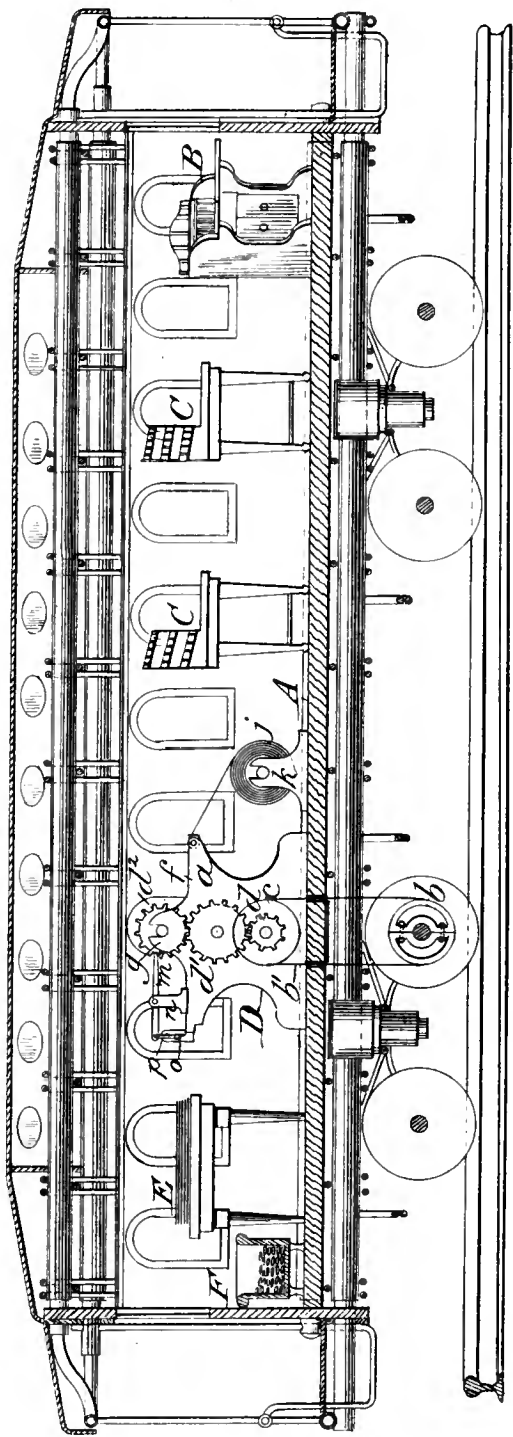
By the subtle agent, electricity, midnight darkness instantly becomes day; the happenings of a continent or the world are brought to a common centre or distributed at will as quickly as language can portray their meaning; space seems to be eliminated and all countries and peoples brought into common communion; natural agencies, assisted by ingenious artifice, are converted into almost unlimited motive power, which, in turn, is widely used to create and distribute commodities of every character—skillfully and almost intelligently performing every required act, one of its most important missions being the dissemination of useful knowledge, principally through the medium of its right-hand and most powerful assistant, the public press. And the object of this invention is to still further apply these great “creative forces.” So important has the spreading of news become, that the great dailies own, equip, and send out swiftly-running special trains expressly to deliver the product of their local presses, and they find the enterprise a paying one, even though it entails enormous expense. But the plan here proposed will greatly lessen the immense outlay, and at the same time give to the patrons along the way even later news than is possible by the present system.

The wires owned and operated by each road can, with little additional cost, furnish the latest developments to the traveling editor, who immediately orders the same set in type and run off by the press on board the regular train in form of supplements to the main sheet, which is of course, as usual, printed in New York or other large cities. These train-presses can be run by either the natural movement of the car, by the belt-pully attached to the truck-axle below, or by special mechanism connected with the locomotive, and, therefore, very little additional expense need be incurred compared with the great advantage of practically combining the regular papers of a large city with the latest items of local and foreign news.

Thus New York, Philadelphia, Baltimore, or Washington papers can be delivered in the West at even dates with the regular morning issue bearing all the customary matter, while the essence of *later* items can be collected and added as above described. A code of telegraphic shorthand can be easily arranged which will greatly condense the work of both the wires and the press, and at the same time give expression substantially to all matters of interest. Time was when one monthly or weekly paper would satisfy a whole neighborhood; but modern ideas have changed all this, and the present inordinate thirst for the latest news, accompanied by a readiness on the part of people to pay for it, will fully justify whatever outlay is necessary to satiate this growing desire. The mode of operating is plain. For example, any leading New York paper, or the Associated Press, sends out a fully equipped printing car attached to the regular train loaded with its various daily journals; naturally, by the time Ohio is reached, the news is a day old, and though there is much interesting matter in each, and the desire to read them very great, still the sale is limited on account of a total absence of events occurring during the previous twenty-four hours. But by this means the New York parties controlling the car know exactly its schedule time, and by telegraph can deliver to the traveling editor at each station along the route whatever is new or interesting since the train started, all of which is printed on the car press as the train progresses, and the supplements so produced are folded and thrown off with the regular bundle to each local dealer; and thus their patrons have not only a full and interesting daily paper *direct* from one of the great cities, but, in addition, a brief and pithy resume of events transpiring up to within a few minutes of going to press.

And probably no one will question the fact that the average circulation would, by these additions, be enormously increased, and the intelligent “reading public” correspondingly gratified by being thus so liberally provided for.

*Fig. 1.*







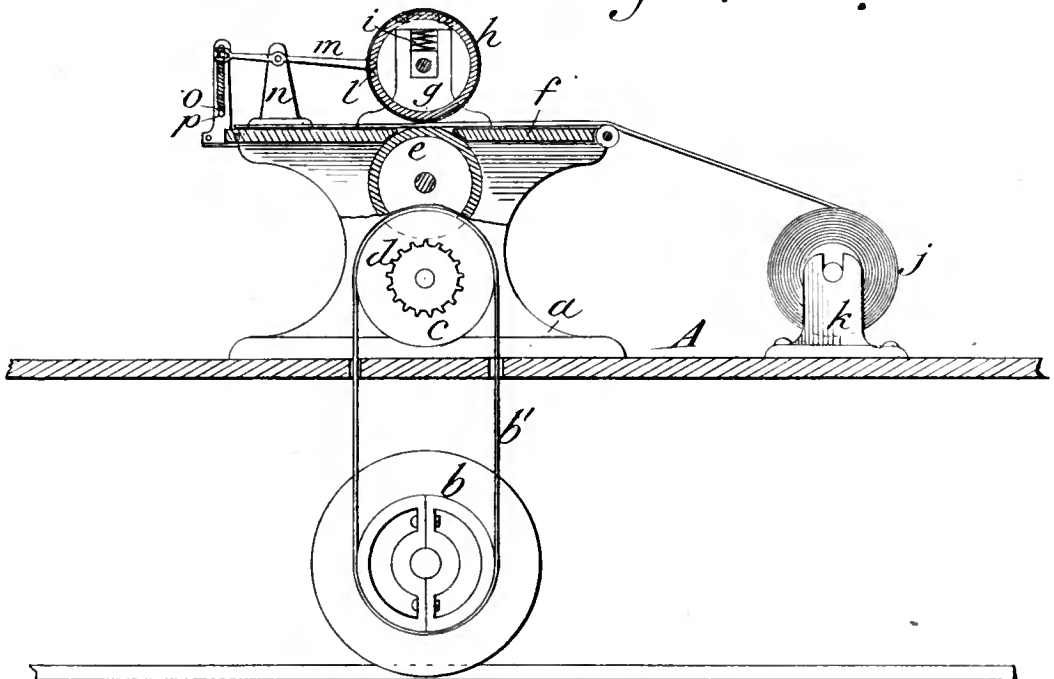
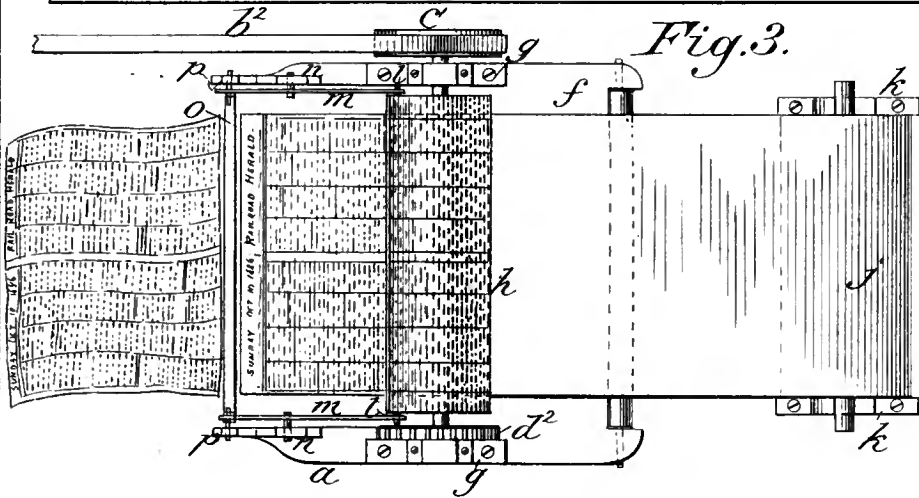




Page 157, Fig. 2, is a side elevation of a simple and effective printing-press for railway cars. It consists of a substantial framework, on which two or more cylinders are properly journaled, these cylinders being impelled by a flexible belt, connected either with the driving-pulley on the truck-axle below or by a similar connection with locomotive mechanism, suitable gear-wheels at the end of each cylinder, meshing into each other, insuring a uniformity of motion to all. One or more of the cylinders, being provided with the required type, makes the necessary imprint on the paper as it passes between them from the roll *j*, each rotation printing a paper complete. An automatic shear at the end of the press framework, moving in harmony with the cylinders, clips the printed page from the roll and delivers it onto the table *E*, where expert folders receive and prepare it for delivery at the proper stations along the way. A simple automatic device for reinking the type forms a part of the mechanism of each press. The speed at which it is run is gauged, not by the speed of the train, which naturally varies, but by automatic brakes or special appliances; the whole apparatus being so simple, however, that it can be operated at a much more rapid rate than those in common use, and thus insures a more prompt delivery of finished work than has hitherto been considered possible.

Fig. 3 is a top plan view of the same press, the paper from the roll *j* passing beneath the cylinder *h*, where it receives its proper impress and passes on to the shear *o*, which severs it from the main roll, as already described.



*Fig.2..**Fig.3.*





## *Management of Factories and Mechanics.*

Very many good men and excellent mechanics are reduced to penury by sickness or other misfortunes, and driven almost to desperation by the absence of any possible hope of providing for their families. The stifling and unwholesome tenements in which they are frequently compelled to exist—their children surrounded by the ignorant, vicious, and depraved—afford but little encouragement to the poor fellows, who, no matter how industrious they may be, find their scanty means exhausted, and their little ones and themselves in the same almost hopeless condition at the end of every year. But a plan infinitely better for both employer and employed is quite as easy to realize, if proper steps are taken, than the simple giving out of work without any regard to what becomes of the employé *after* working hours.

A factory, located some distance from the busy centres, can, with little cost, be surrounded by neat and comfortable cottages, which can be readily sold to industrious and honest workmen, and paid for by suitable reservations from the daily or weekly wages. This gives to the provident laborer not only a place to *stay*, but an actual *home*, with *something to live for*, and insures to the employer a sober and efficient workman, the mutuality of interests being easily understood by all; and few will venture to question the fact that a workman so surrounded and provided for is not only a better man, but a far more trustworthy and profitable employé, insuring to the employer a better class of finished goods and also a certainty of completed tasks within a specified time. Too much, in fact, cannot be said in favor of such a system. With judicious management and very little outlay on the part of the employer, self-supporting libraries and other laudable places for instruction and pleasure can be added to the general plan, and an harmonious and industrious community built up, in which discontent would be comparatively rare and strikes or acts of violence next to impossible. The humanizing influences of such surroundings cannot be overestimated, for even the most depraved of men are susceptible in some degree to refining influences, and this is especially the case with a class intelligent enough to adopt the calling of "practical mechanics." Nothing can be lost, but much will be gained, by agreeable surroundings, and if the grounds about the premises are properly laid out and tastily arranged, a volunteer contingent from the regular working force can always be depended upon to cheerfully devote an hour or so after working hours, free of cost, to keep them in order, thus entailing no additional expense on the employer, and, at the same time, also a pleasant rivalry, in keeping *individual* grounds in attractive condition, can easily be stimulated and maintained, and all these little attentions contribute very materially, not only to individual happiness and comfort, but largely to the general appearance of thrift and contentment, and it is found that the order and necessary discipline of a factory is much more easily and satisfactorily maintained where the employés come to their daily work in a pleasant and contented frame of mind. But the greatest of all advantages to be thus gained is the keeping up of a wholesome and active condition of both mind and body, for in every large collection of intelligent workmen there are many who, even if not practical inventors, are men of progressive intellects, and their various and useful suggestions as to the mode of doing this or that work, and their ingenious devices for saving labor, will often lead to valuable changes, and, not infrequently, to a great lessening in cost of manufacturing, and, as this is a progressive age, this feature is well worth considering, and whenever and wherever humanizing influences are exerted and a unity of interests established the general result is favorable to all concerned.





The plan of the factory, as shown on page 163, is 500 feet front; main extensions the same length, and each 50 feet wide and four stories high, the inner extensions being each 40 by 200 feet, two stories high. Foundry, 70 by 200 feet, one story. Engine-house, 60 by 120 feet, one story high, with tunnel connections extending to each department, through which power is communicated to *all* from the "Central Motor." This gives a total floor area of over 350,000 square feet, or ample room for over 4,000 workmen.

By the usual standard of calculation, this number of men would bring a resident population of from fifteen to twenty thousand, which, of itself, if intelligently conducted, would be not only an industrious and important community, but in fact a model city of substantial growth, and as enduring as the great railroad interest for which it was created.

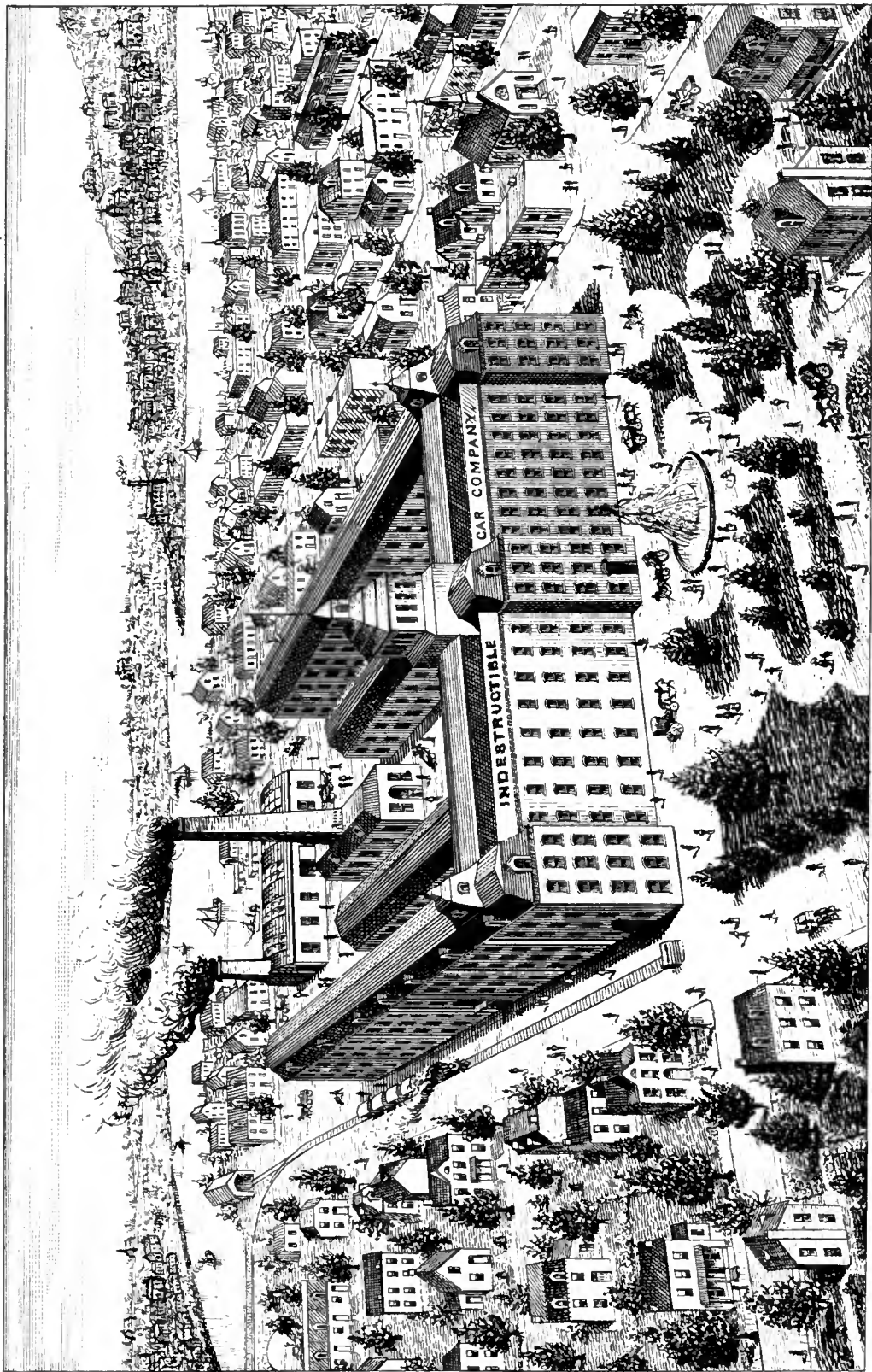
And *no* one will now dispute the fact that railroading, taken as a unity in enterprise, is the leading industry of the Age, unquestionably wielding a greater and more widely extended influence than any other known agency, opening up vaster territories to the progress of civilization, bringing to uncounted communities greater luxury and wealth, and to *individuals* more fabulous fortunes than even the "*dreamers*" dared to contemplate before this prosperous Era began. And whoever can add to the efficiency of this wonderful system, or stimulate its wholesome growth by protecting its property or shielding from danger the numberless lives intrusted to its care, is a practical *public benefactor*, clearly entitled to, and should receive, not only reasonable recompense, but, in addition, the lasting gratitude of the world.

J. W. Past.

NEW YORK, September, 1887.









Date .....

Name:

Residence:

Amount paid, \$.....

Name of Assignee:

Amount subscribed for ..... Shares.

Remarks .....

**The Steel Tubular Car Co.**  
OF WASHINGTON, D. C.

Capital Stock,  
\$5,000,000.

Shares,  
\$100 each.

....., 188

**Received of**

..... Dollars.

To apply on the purchase of ..... Shares of the full paid  
and unassessable Stock of the above Company, which Stock will be issued to  
the order of the purchaser upon the surrender of those receipts to the Company's  
Treasurer.

Amount subscribed for ..... Shares.

Secretary.

Treasurer.

As very many persons find it easier to purchase on the "installment plan" than to make full payment at once, receipts like the above will be given for whatever sums are paid on account of subscriptions, which receipts will be received in exchange for the regular Certificate of Stock whenever the full amount is paid. The advantages of this system of partial payments to the purchaser being, first, convenience in making payments, and, second, the full benefit of whatever advance there may be in the price of said Stock; and as not only the People and the Public Press, but even the Law-making Powers, are moving in a practical way to Force the Adoption of some means of preventing the Reckless Sacrifice of Life and Property by Railroad Companies, the adoption of this system seems a foregone conclusion, and the already Valuable Stock of this Company must necessarily rapidly appreciate in value. Address STEEL TUBULAR CAR COMPANY, Box 6717 Washington, D. C.





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